Northern California's Computer Magazine
May 31, 1993 • #109
FREE

MICROTIMES™

An Interview With Author Brenda Laurel

"My issue with 'interface' is that it's all predicated on the notion that the relationship is between the user and the computer. I don't think it's true. If you believed a similar thing about films, we would go see projectors instead of movies."

Redefining Our Relationship To Computers

NEW SECTION INSIDE!

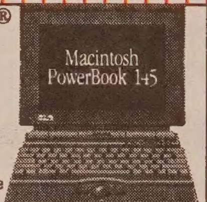
MultiMedia & Beyond

In This Issue:
Amiga Recording Studio:
Viewpoints From The Pros

Silicon Loves Valley Apple

Authorized Reseller

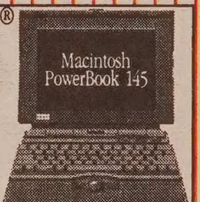
Apple® Macintosh® Powerbook™ 145 4/40



The Apple® Macintosh® PowerBook™ 145 computer is designed for those who want solid Macintosh performance and flexibility in a convenient, take-it-wherever-you-work notebook computer. Although it fits easily in your briefcase, this innovative notebook computer offers the full power and ease of Macintosh computing.
#1720866

$1899

Apple® Macintosh® Powerbook™ 145 4/80



The Macintosh® PowerBook™ 145 is designed for those who want solid Macintosh performance and flexibility in a convenient, take-it-wherever-you-work notebook computer. This sleek, innovative Macintosh fits easily inside a briefcase but offers both the full power and the ease of Macintoshcomputing.
#1720877

$2199

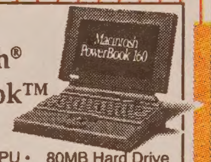
Apple® Macintosh® Powerbook™ 160 4/40

Macintosh PowerBook 160

68030 25MHz CPU
4MB RAM Expandable to 14MB
40MB Hard Drive • Modem slot • RAM Slot
Supports 6 SCSI Devices • 2 Serial ports
ADB ports • Video port • SCSI port
10 inch back-lit supertwist display
Nickel-Cadium battery • Built-In Appletalk
#1738270

$2149

Apple® Macintosh® PowerBook™ 160 4/80



68030 25MHz CPU • 80MB Hard Drive
4MB RAM Expandable to 14MB
Internal Apple SuperDrive Floppy Drive
2 Expansion Slots: 1 for RAM,
1 for Modem
SCSI Port, Supports 6 SCSI Devices
ADB Port • Video Port
Nickel-Cadium Battery
10" Backlit Supertwist Display
Built-In appletalk #1738281

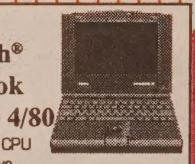
$2449

Apple® Macintosh® Color PowerBook™ 165C 4/80

With the PowerBook™ 165c, the impact and appeal of a bright, vivid color display is now available on a portable Macintosh computer. It delivers the processing speed, flexibility, and convenience you needall in a package that weighs just seven pounds and fits into a briefcase. It also features a backlit passive-matrix display that gives you 256 brilliant colors. You can also connect to a larger display for more work space.
#1767393

$2499

Apple® Macintosh® PowerBook Duo™ 210 4/80



68030 25MHz CPU
80MB Hard Drive
4MB RAM Expandable to 12MB
2 Expansion Slots
Serial Port
Docking Connector
Power Adapter Port
Modem Port
9" Backlit Supertwist Display
Nickel-hydride Battery • Built-In Appletalk
#1738339

$1499

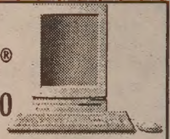
Apple® Macintosh® Powerbook™ 180 4/80

Macintosh PowerBook 180

The Apple® Macintosh® PowerBook™ 180 computer is the most powerful member of the PowerBook family of notebook computers. It combines incredible speed with high performance and the best screen quality available today, to give you a notebook that's flexible, functional, portable, and powerful. The PowerBook 180 has everything you need for impressive client presentations. Video-out capabilities let you work on a variety of external displays, both monochrome and color. It comes standard with 4 megabytes of RAM and runs applications up to 50 percent faster than the PowerBook 140.
#1738306

$3799

Apple® Macintosh® LC III 4/160



60830 25MHz CPU
(68882 Math Coprocessor Optional)
4MB RAM Expandable to 36MB
160MB Hard Drive
Internal SuperDrive Floppy Drive
Supports • 7 SCSI Devices 2 Serial Ports
ADB Port • Video Port • SCSI Port
Built-In Appletalk Offers faster processing and greater storage capabilities • 512K VRAM Expansion Slot
Monitor and Keyboard Not Included.
#1767441

$1369

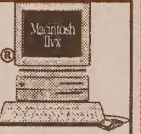
Apple® Macintosh® Quadra™ 800 8/500

WITH APPLE CD-ROM

With its fast, 33-megahertz Motorola 68040 microprocessor, accelerated graphics architecture, and improved SCSI and NuBus capabilities, the Macintosh Quadra 800 runs applications 30 percent faster than the Quadra 700. The Macintosh Quadra 800 gives you unique, built-in capabilities for fast and direct access to the resources you need. For photographic quality images and QuickTime movies with lifelike color, you can upgrade the Quadra 800 to display more than 32,000 colors on the same 16-inch display. If you need to share information in a high-speed network, the Quadra 800 comes with built-in Ethernet.
Monitor & Keyboard Extra #1767728

$4799

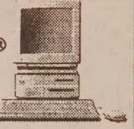
Apple® Macintosh® IIvx™ 5/80 w/CD-ROM



68030 32MHz CPU
32K Memory Cache
68882 Math Coprocessor • 512K VRAM
5MB RAM Expandable to 20MB
80MB Hard Drive • 3 NuBus Slots
Supports 7 SCSI Devices • 2 Serial Ports
2 ADB Ports • Appletalk Built-In.
Monitor & Keyboard Sold separately
#1738498

$1989

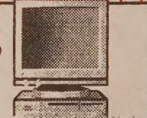
Apple® Macintosh® Centris™ 650 8/230 w/CD-ROM



68040 25MHz CPU • 230MB Hard Drive
8MB RAM Expandable to 132MB
Internal SuperDrive Floppy Drive • CD-ROM
3 NuBus Slots • Supports Seven SCSI Devices
5.25" Drive Bay • 2 Serial Ports • 2 ADB Ports •
Video Port • SCSI Port • Ethernet Port
Built-In Appletalk
Monitor and Keyboard Not Included
#1767636

$3499

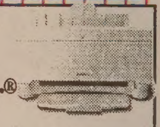
Apple® Macintosh® Centris™ 610 4/80



Now there's an affordable way to take advantage of the power of the 68040 microprocessor: the Apple Macintosh Centris 610 desktop personal computer. Like all Macintosh Centris computers, the Macintosh Centris 610 delivers the high performance you need to get the job done in a demanding environment, while giving you the flexibility to configure your system to meet your needs today and tomorrow.
Monitor and Keyboard Not Included
#1765748

$1499

Apple® StyleWriter® II Printer



The Apple® StyleWriter® II printer, laser-quality printing at an affordable price.
- 360 dots per inch quality.
- Multipurpose tray holds up to 100 sheets of paper and 15 envelopes
- Comes with 39 scalable TrueType™ fonts
- GreyShare™ driver software for gray-scale printing
- All Macintosh products are designed to work together

#1758221

$319

Fry's ELECTRONICS

Home of Fast, Friendly , Courteous Service

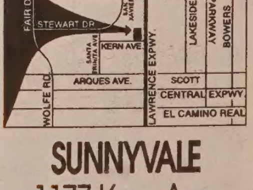
STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

Prices good through June 21, 1993

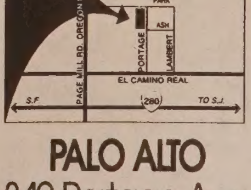
Limit Rights Reserved
Not Responsible For
Typographical Errors

VISA MasterCard **VISA AND MASTERCARD**

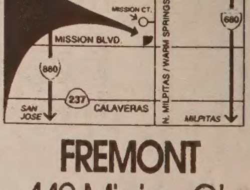
CORPORATE P.O. FAX # (408)735-6800



SUNNYVALE
1177 Kern Ave.
(408) 733-1770



PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060



FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

DON'T GET BLOWN AWAY!

OPERATION: UNDERCUT

We're Starting the Revolution on LOW Drive Prices!

You won't have to pay outrageous *retail* prices again when you buy *wholesale* at the **Disk Drive Depot**! We carry a full arsenal of new and factory refurbished disk drives. Our salespeople are friendly and experienced, and we'll never make you wait in line! *You won't find better service or value anywhere!*

WANTED:

We're looking for a few good ***CD-ROMs...*** *Trade in your old ones and browse through our extensive selection of new disks.*

The Reinforcements Have Arrived!

QUALITY REFURBISHED DRIVE KITS!

Maxtor Panther 1.7GB Drive

Your're in command with Maxtor's largest SCSI-II Panther! Complete Kit with Cache controller & 1MB cache RAM exp. to 64MB. Its deadly 13ms access time makes Windows scream! ***$1495****

Maxtor Panther 1.2GB Drive

Get rid of your old, scarred drive and replace it with Maxtor's mighty Panther SCSI-II (13ms access time). Includes CSC's caching controller, & 1MB cache RAM. Preformatted & Ready to Go! ***$995!****

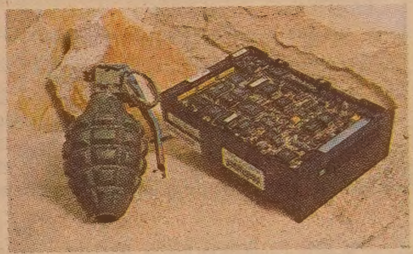
Maxtor 640MB Drive Kits!

Unbeatable Price/Performance Ratio..... This drive transfers fast - a pulse-pounding 0.1ms cache access time! Incl. 1MB cache RAM card. ***$749!****

Brand New! Maxtor 1249MB Drive!

Blast into action! This 3.5", 8ms drive, hot caching controller, and 3 year warranty makes this one of our most aggressive packages!! ***$1495***

EXPLOSIVE DDD SPECIALS!



10,000,000,000 Bytes!!

Erasable Optical Jukebox — ***$5995!***

INCREDIBLE... 10 Disk Jukebox with High Performance Tahiti-II multifunction drive!

NEW Maxtor Optical Drive — ***$269!***

Your very own Data Depot....800MB, SCSI!

CD-ROM Blowout! — ***$249!***

NEW NEC external CD-ROM. (While supplies last)

Standard 1 year warranty on these drives. 5 year warranty is optional (and inexpensive).

Pre-formatted Kits Available for all MAC, SUN, and PC Applications.

We Gladly Accept Visa or MasterCard

DEALERS: We offer Dealer Discounts to Resellers for purchases of 2 or more identical units. Bring in a valid California State Resale Card and SAVE EVEN MORE!

(Please present coupon with purchase)

FREE! SCSI Controller

This coupon entitles the bearer to one FREE Storage Dimensions Data Cannon SCSI hard drive controller with any SCSI drive.

EXPIRES 6/15/93. NOT VALID WITH ANY OTHER COUPON OR DISCOUNT.

$50.00 OFF!

This coupon entitles the bearer to $50.00 off of ANY PURCHASE over $500.00 at the Disk Drive Depot.

EXPIRES 6/15/93. NOT VALID WITH ANY OTHER COUPON OR DISCOUNT.

DISK DRIVE DEPOT

TEL: (408) 738-3895
FAX: (408) 738-3896

DISK DRIVE DEPOT
500 Lawrence Expressway,
Sunnyvale, California 94086

*Located on the nice side of the street - Opposite Wierd Stuff. Quantities are limited on some items, and prices are subject to change without notice. * 1 Year Warranty standard on all items in this ad. * Star indicates factory refurbished - All other drives are Factory New*

TENS OF THOUSANDS OF OUR SYSTEMS SOLD SINCE 1983 ARE STILL IN USE!!

WORLD'S MOST POWERFUL & FAST COMPUTERS!

1) AT&T Chooses SAM Workstations Over Gateway 2000!
2) Apple Buys SAM Workstations!
3) Hewlett Packard & Sun Engineers Buy SAM Workstations!
4) Rated As One Of The Best File Servers With Detachable 1.2 Gigabyte Hard Drives By Leading Network Engineers!
5) The Fastest Engineering Workstation For Software Development & CAD Applications!
6) 10 Years In Silicon Valley!
7) Symantec, Scitor, Veritas & Many More Companies Have Become Giants In Software..They Have Our Computers & Workstations!

486DX2-66 MHz
BASE SYSTEM LOCAL BUS

Motherboard + Case
+ Power Supply
+ 101 Keyboard
+ 1MB + 1.2 Floppy
+ INTEL 486-66 DX2 CPU
ONLY

$999

COMPUTERS

CALL FOR BEST AVAILABLE PRICES!!

AT&T
ALR
ACER
AMI
APPLE
AST
COMPAQ
EVEREX
EPSON
FORA
LEADING EDGE
MITSUBISHI
MYLEX
MICRONICS
MITAC
NEC
PANASONIC
PACKARD BELL
SUN
SAM WORKSTATION
SAMSUNG
TAXAN
TOSHIBA
ZENITH

BUSINESS SPECIAL

486/50/66

- 200 MB
- 1.2 & 1.44 MB FLOPPY
- 8 MB RAM + FAX/MODEM
- TAPE BACK-UP
- VGA CARD
- VGA MONITOR
- SCO UNIX
- NETWORKING

LEASE OR FINANCE FROM $100 PER MONTH

HARD DRIVES & TAPE BACK-UPS

2.2 Gigabyte
1.2 Gigabyte
550 MB
240 MB
120 MB
QUANTUM

FUJITSU
CYBERNETICS
CONNER
SAMSUNG
XBYTE
COLORADO
MAYNARD
H.P.
MAXTOR

NOTEBOOK

486-33
w/200 MB HARD DRIVE
$2299

TOSHIBA, APPLE, NEW, ALR, & MORE ALL AVAILABLE

WORLD'S BEST PRICE!

ACS 486-33 MHz . . $1190

- 4 MB RAM Expandable to 32 MB On Board
- 120 MB, 16ms Hard Drive
- 1.2 MB, 5¼″ Floppy Drive
- 1:1 Interleave 2 Hard/2 Floppy Drive Controller
- 2 Serial, 1 Parallel, 1 Game Port
- 16-Bit SVGA Card
- 14″ SVGA Color, 1024x768, 0.28mm Dot Pitch Display
- Clock/Calendar with Battery Back-up
- 8 Expansion Slots
- 3 Button, Hi-Resolution Serial Mouse

SOFTWARE - LOWEST & BEST PRICES

UNIX, ORACLE, INFORMIX, SCO-ALL APPLICATIONS, 1,2,3 FOR UNIX, WORDPERFECT FOR UNIX, AUTOCAD R.12, NOVELL, 3COM, LANTASTIC, BANYAN, COREL DRAW, FRAMEMAKER, Q & A, D BASE IV, MS WORD, BORLAND

MONITORS

NANAO	
F550i	$1090
F340in	$730
F750i	$2090
MAG	
MX17F	$1065
MX15F	$580
NEC	
4FGE	$734
5FGE	$1340
6FG	$2390
SONY	
CDP 1430	$595
CDP 1640S	$990

PLOTTERS/ DIGITIZERS

SUMMA SKETCH . . $325
CALCOMP . . . . BEST PRICE
HITACHI
HP
KURTA
ROLAND
MICROTEK
LOGITECH
ALL PLOTTERS & DIGITIZERS

PRINTERS

LASER

HP LASER IV $1375
IBM
APPLE
EPSON
OKIDATA
QMS
FUJITSU
QUME
PANASONIC
NEC

ADVANCE COMPUTER SYSTEMS

Delivery & Installation Available
3 LOCATIONS TO SERVE YOU

SUNNYVALE - 665 GRAPE AVE. (408) 732-6200, FAX: (408) 749-9449
WALNUT CREEK - 1987 N. MAIN ST. (510) 945-8011, FAX: (510) 945-4941
SAN FRANCISCO - 1231 MARKET ST. (415) 552-2902, FAX: (415) 703-6217

(A) Prices subject to change w/o notice
(B) Financing Available
(C) Not responsible for typo error
(D) Installation Extra
(E) Subject to stock on hand
(F) Prices vary at stores
(G) Toner extra
(H) Visa, mastercard

SPECIAL FOR ENGINEERS/SOFTWARE DEVELOPERS

Used By Santa Cruz Operation-

SCO THE SANTA CRUZ OPERATION

The world's largest UNIX software developer-to exhibit their software at UNIXFORUM, Washington, DC.
THAT IS HOW GOOD OUR COMPUTERS ARE!

PORTABLE PENTIUM UPGRADABLE

- *Up to 66 GIGA Hard Drive*
- *Up to 96 MB RAM*
- *Good for UNIX, NOVELL, DOS, OS/2*
- *Color*

CALL FOR PRICE

486 EISA/ISA/LOCAL BUS PORTABLE

"NETWORKING" Call for your Requirements

THE ORIGINAL

MEGA TOWER

The Perfect Foundation for the Ultimate File Server!

- 2 EXTRA COOLING FANS
- WELDED LOCKING CASE
- UP TO 11 DRIVE BAYS
- 400W P/S
- UP TO 14 SLOTS
- TUV, CSA, UL

Slides Open For Easy Access

THE

SUPER SERVER

Ideal Disk Array/Server For NOVELL & UNIX Applications with CCSI's 12 Slot EISA Motherboard

- TWO POWER SUPPLIES (OPTIONAL)
- 13 DRIVE BAYS (W/EXTERNAL ACCESS)
- 2 BACK WHEELS
- ELECTRONIC CARDKEY DOOR ACCESS

SAM WORKSTATION

- PENTIUM CPU UPGRADABLE
- 486-66 MHZ EISA/LOCAL BUS
- 1MB CACHE
- 32 MB MEMORY EXPANDABLE TO 96 MB
- 20"/37" MONITOR
- 1280X1024 TIGA
- AUTO CAD
- 32 BIT NETWORK CARD
- DIGITIZER/PLOTTER
- MULTIMEDIA
- SCSI CACHE 16MB
- 2.2 GIGABYTE SCSI HARD DRIVE CONFIGURED (EXPANDABLE TO 50 GIGABYTE)
- 1 GIGABYTE TAPE EXPANDABLE TO 50 GIGA
- SERVER CASE
- UNIX/NOVELL/OS-2/DOS/3COM
- WINDOWS NT

COMPLETE SYSTEM

RACK MOUNT SYSTEMS

- 220 WATT POWER SUPPLY
- EXTRA FAN & FILTER
- (3) FRONT DRIVE BAY OPENING

EISA, ISA CPU Cards & Passive Backplanes

TAKE ANY COMPUTER...

COMPAQ Apple IBM NEC AST AMI MICRONICS MYLEX DELL GATEWAY

and we will install a 2 Gigabyte HD, 2GB Tape Back-up, 37" Monitor, CD Rom, Novell Software, UNIX Software, D Software, and any configuration you want. Please Call.

GRAPHICS WORKSTATION

- 37" MONITOR
- 486-66 MHZ
- 32 MB RAM
- CD ROM
- 1.2 GIGA HARD DRIVE
- 1.2 GIGA TAPE BACK-UP
- 32 BIT VIDEO CARD
- COLOR LASER PRINTER
- VENTURA, GEM PHOTOLAB

CALL FOR PRICE

WE CAN CONFIGURE:

- Up To 96 MB Memory
- 1 GB Up To 50 GB Hard Drives
- 14" Up To 37" Monitor
- Super Fast Video Cards
- SCO Unix, Novell, AutoCAD, OS/2, DOS, 3Com

CALL REGARDING ANY CONFIGURATION & BEST PRICE

ADVANCE COMPUTER SYSTEMS

3 LOCATIONS TO SERVE YOU

SUNNYVALE
665 Grape Ave.
(408) 732-6200
Fax: (408) 749-9449

WALNUT CREEK
1987 N. Main St
(510) 945-8011
Fax: (510) 945-4941

SAN FRANCISCO
1231 Market St.
(Inside Ramada Inn Mezzanine Floor)
(415) 552-2902
Fax: (415) 703-6217

Leasing & Financing Available

MAY 31, 1993 ISSUE #109
MICROTIMES

Editorial
(510) 934-3700

Advertising
(510) 934-3700 (408) 244-4400

TABLE OF CONTENTS

A NOTE FROM THE EDITORS

We're pleased to bring you this month's cover story, an interview with author and interface expert Brenda Laurel, whose work has led her to some interesting conclusions about the way we're likely to be using computers in the future. We hope you'll find the article interesting and thought-provoking.

—ME

COVER STORY

Toward A New Human-Computer Relationship

An Interview With Brenda Laurel

By Michael Robin 70
Cover and photos: Paul Winternitz

There are those who think we're taking an unnecessarily limited view of the way people should use and relate to their computers. Author Brenda Laurel, now at Interval Research, is one of them. Assistant editor Michael Robin pays her a visit and gets some interesting perspectives.

NEWS & VIEWS

Industry Insight *By Paul Hoffman* 17
New Chips Challenge Intel....................17
SCO Settles Suit, Files For IPO....................17
Microsoft/Intel Cable Plans....................18
MicroTimes Stock Index....................20

Realizable Fantasies *By Jim Warren*....................22
The latest on the dialup access to the legislature.

Letters 27

Dvorak's Last Column *By John C. Dvorak* 310
A fuzzy look at fuzzy logic.

BUSINESS SOLUTIONS

Pens & Palmtops *By Mitsu Hadeishi* 28
Tips for using the Casio SF-R20.

Laptops *By Ed Kahn* 34
Home spreadsheets; Packard Bell 486DX Notebook.

Forming A Corporation Or Partnership
By David A.Simon, CPA, and Jennifer Robin Cherniss 43
Do-it-yourself software for starting a small business.

Telecommuting Technology Improving
By Robert Moskowitz....................51
Remote workplaces are facilitated by new tools.

LANs *By Yacco* 58
Does your network need Pentium?

UNIX *By David Hawkins*....................62
Regular columnist Bennett Falk enjoys a well-deserved vacation as retired Contributing Editor David Hawkins contributes tips on the Bourne Shell.

FEATURES

Paradox: The Paradigm Shift *By Birrell Walsh*........106
Borland's long-awaited Windows version has arrived, and it's definitely not Old Paradox.

OS/2: Software And Hardware Considerations
By Fabian Pascal 110
Configuring a system that will give you the best possible performance.

The End Of BBSing On Prodigy? *By Kathleen Creighton* . 114
New pricing structure portends big changes.

BMUG *By David Morgenstern* 118
Ready or not, here come the viruses.

Network Communities Across Boundaries
By John S. Quarterman 128
How online communications change and transcend organizational and physical limits.

MULTIMEDIA & BEYOND

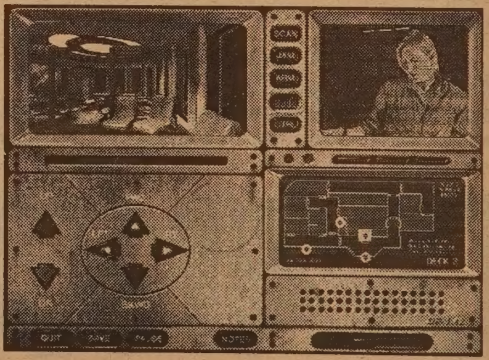
Multimedia & Beyond 263

The Amiga Recording Studio
By Douglas J. Nakakihara 264
New products for manipulating sound.

Preview: Digital World 272
Coming in June to the Beverly Hilton, this conference addresses the full spectrum of issues confronting the multimedia community.

Multimedia 101 *By Jonathan E.* 280
Live multimedia—true-life adventures.

Graphic Adventure Developers On The Edge *By Tony Reveaux*....................287
CD-ROM game developers find ways to beat the medium's limitations.



Artware For Macintosh Computers
By Judy Malloy 298
Examples of a new kind of storytelling.

AMS Challenged The Limits Of The Ordinary PC To Give You The Best Value Available Anywhere !

At AMS great wasn't good enough for our customers. We challenged the limits of the PC market to develop the best values in computers. Brands like IBM, Intel, AMI, Conner' Maxtor, Sony etc... . We took the best and carefully engineered them to out perform the rest of the competition. And the result are in with AMS clearly leading the pack. That's why AMS won WINDOWS SOURCES Magazine's EXPERT PICK's, March '93. AMS offers the best value on the best quality co

American Multisystems, Inc
InfoGOLD 486-50

EXPERTS' Windows SOURCES PICK

Windows Sources
The Magazine for Windows Experts

MARCH 1993
"With brilliant graphics performance, the InfoGOLD 486-50 makes one smart choice as a Windows workstation"

WINDOWS NT WORKSTATION

ATTENTION NT DEVELOPERS, CORPORATE USERS !

We have single and multiple CPU WINDOWS NT MACHINES !
Servers and Workstations
Our Satisfied NT Customers: Hitachi Corp.; Hewlett Packard; University of BP.; etc...

REPAIR AND UPGRADE

Repair & Upgrade Services !

Upgrade your 286, 386 IBM or IBM Compatible system to 486 !

Complete Systems Include:

- 4Mb Memory
- 1.44Mb & 1.2Mb TEAC Floppy Disk Drive
- 1:1 FD/HD Controller w/2S,P,G
- S-VGA Card w/512K
- 14" S-VGA Monitor (0.28DPI)
- 120Mb Conner Hard Drive
- 101 Enhanced Keyboard
- DeLuxe Mini Tower Case

90 days same as cash !

486DX2-66MHz EISA VESA IDE Caching Local Bus w/1Mb	$2435 OR ONLY $68/MONTH
486DX2-66MHz VESA IDE Caching Local Bus w/1Mb	$2145 OR ONLY $60/MONTH
486DX-33MHz VESA IDE Caching Local Bus w/1Mb	$1920 OR ONLY $58/MONTH
486DX2-66MHz	$1419 OR ONLY $45/MONTH
486DX-33MHz	$1199 OR ONLY $39/MONTH
386DX-33/40MHz	$ 969 OR ONLY $39/MONTH

Special of the Month

486-66/33MHz Local Bus

Includes:

- 4Mb Memory; 128K Cache
- 1.44Mb TEAC Floppy Drive
- 120Mb CONNER Hard Drive
- Local Bus S-VGA Card w/1Mb
- 14" S-VGA Color Monitor 0.28dpi
- 1:1 FD/HD Local Bus Controller w/2S/P
- 101 Enhanced Keyboard
- MS Compatible Mouse

SALE

$1495/1260

Upgrade options:

250Mb Tape backup	$175	Diamond Viper S-VGA	$299
120Mb Tape backup	$135	DTC Caching EISA SCSI	$269
Sony SCSI CD-ROM	$385	Multi-Media Upgrade	$345

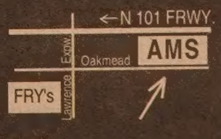
Low interest and low monthly payment financing available with 10 % down. Credit approved in 30 minutes. No interest for 90 days *

Not responsible for typos. Prices may change without notice. * 2 scheduled payment required

Terms and Conditions:

All prices reflect cash discount. One Year Warranty on Parts and Labor. 30 Day Satisfaction Guaranteed on all products. All returns are subject to approval. 15% restocking fee for all returns. All prices subject to change without notice. Not responsible for typos.

408/524-9091



American Multisystems
538 Oakmead Pkwy. Sunnyvale California 94086

MAY 31, 1993 ISSUE #109
MICROTIMES

TABLE OF CONTENTS

MICRO MARKET PLACE
A SPECIAL ADVERTISING SECTION FOR BAY AREA COMPUTER BUYERS

STARTS ON PAGE 90

Internet Talk Radio *By Kevin Savetz* 154
Coming to an ftp site near you, downloadable talk shows.

Chip Wars *By Norris Parker Smith* 182
PowerPC and others challenge Pentium.

PRODUCT SPOTLIGHT

Product Updates 213

New Products

PC Hardware

UNIQ File Server *213*
Picture Perfect *213*
Samtron VLMF Display *213*

Reviews

Games By Mike Markowitz

V For Victory: Market Garden 1944 .... *214*
Rome: Pathway To Power *214*
El-Fish *216*

PC Software

Majestic Places—Mediaclips CD ROM *255*
DrivePro *258*

PC Hardware

Backpack Hard Drive *258*

Amiga Software

ImageFX *258*
VistaPro 3.0 .... *303*

RESOURCES

Calendar Of Events **218**
BBS Sysop Conference *218*
California Computer Show & Sale *218*
SF Public Library Online *218*

User Group Network **230**
BBS Column: Beating The High Cost Of BBSing.

Classifieds **248**
Index Of Advertisers By City **306**
Index Of Advertisers **308**

SPECOM Technologies
PICFON™ SYSTEM
for Document and Video conferencing.

Specom offers real time interaction of visual and voice information. The system that reduces decision making time and eliminates communication errors. With Specom, you'll save time, money and valuable resources. With an ordinary phone line and Specom, you'll be able to take advantage of the world of desk top conferencing.

SPECOM FEATURES INCLUDE:
- Captures, digitizes and compresses picture in real time.
- Digitizes and compresses voice and multiplexed with data on full duplex mode.
- Sends and receives voice and data over an ordinary phone line.
- Integrated 9600 baud modem (V.32) or 14.4K baud modem (V.32 bis).
- Supports high resolution, true color video image.
- Excellent voice quality.
- Real time interaction with mouse and tablet.

SPECOM
TECHNOLOGIES CORPORATION
2322 Walsh Avenue
Santa Clara, CA 95051
Fax: (408) 982-1883
Tel: (408) 982-1880

PRODUCT DESCRIPTION:
2 PICFON Cards, 2 CAPICOM Cards, PICFON & CAPICOM Software
Third party desktop conferencing software, compatible with all DOS and Windows applications, currently available

Free Demos Every Tuesday and Thursday Afternoons. Call for an Appointment NOW!!

APPLICATIONS:
- ENGINEERING
- CAD
- MANUFACTURING
- REAL ESTATE
- MEDICAL
- LEGAL
- INSURANCE
- FINANCE
- SALES
- ADVERTISING & DESIGN

Welcome To
The World Of
Desk Top
Conferencing.

KING STAR COMPUTER, INC.

NOTEBOOK

386SLC/25

- 4 MB RAM
- 1.44 MB Floppy Disk Drive
- 80 MB Hard Drive
- Serial/Parallel Port/Clock
- 6.7 Lbs
- 10" LCD Monitor

$975

120 MB + $80

Landmark 223 MHz Basic System
486 DX2-66 MHz/256K VESA LOCAL BUS
$875

Landmark 167 MHz Basic System
486 DX-50 MHz/256K EISA VESA
$835

Landmark 168 MHz Basic System
486 DX-50 MHz/256K/2 Local Bus VESA
$795

Landmark 167 MHz Basic System
486 DX-50 MHz/128 ISA
$750

Landmark 113.44 MHz Basic System
486 DX-33 MHz/128K/2 Local Bus VESA
$599

Landmark 113 MHz Basic System
486 DX-33 w/128K
$569

Landmark 54 MHz Basic System/62 MHz
386 DX-33/128K/40 MHz + $10
$329

Landmark 30 MHz Basic System OPTI
386 SX-33 MHz
$279

Landmark 21 MHz Basic System
386SX-16 MHz
$259

Landmark 89 MHz Basic System OPTI
486DLC-33 MHz/128K/40 MHz +$30
$369

Landmark 106 Basic System OPTI
486DX2-40 MHz/256K
$539

BASIC SYSTEM INCLUDES

Motherboard & CPU • 1MB of Memory • 1.2MB or 1.4MB Floppy Drive
2 Serial • 1 Parallel Port • 1 Game Port • Case w/ Power Supply
1:1 2HD/2FD Controller • 101 Enhanced Keyboard

486-33 MHz 128K

- Basic System Configuration
- 250 MB Hard Disk IDE 15ms
- 14" SVGA Monitor/DOS 6/ Windows 3.1

$1,198

486-50 MHz 128K

- Basic System Configuration
- 250 MB Hard Disk IDE 15ms
- 14" SVGA Monitor/DOS 6/ Windows 3.1/SVGA Card w/512K

$1,389

386-40 MHz 128K

- Basic System Configuration
- 120 MB Hard Disk IDE 15ms
- 14" SVGA Monitor
- 1.2 MB FDD
- 1.44 MB FDD
- SVGA Card w/512K/4 MB RAM

$899

486DX2-66 MHz/256K

- Basic System Configuration•VESA
- 350 MB Hard Disk IDE
- 4 MB RAM To 32 MB
- 14" SVGA Monitor .28
- 1 MB VGA Card 32 Bit
- Two Local Bus
- MS DOS 6/Win 3.1

$1,715

MONTHLY SPECIALS

FAX MODEM/2200 FAX/14400 MODEM	$155
SUPER VGA CARD 1024X768/ 1 MB	49
386-33/40/40 256K BOARD UPGRADABLE TO 486-33/50/66 MHz	99
200 MB IDE HD BRAND NEW	235
340 MB IDE HD BRAND NEW	365
SOUND CARD FOR MULTIMEDIA AND WINDOWS/SPEAKERS/MICROPHONE	139
CD ROM MITSUMI 350MS/CARD	179

DRIVES

40 MB IDE 28ms/60 MB IDE 19ms	$115/135
80 MB IDE 17ms/25ms	170
105 MB IDE 13ms/15ms	170
120 MB IDE Conner 15ms	179
200 MB SCSI Maxtor/Conner 15ms	315
175 MB Conner 15ms	210
200 MB IDE 15ms	245
250 MB 15ms	285
340 MB ESDI 13ms	365
120 MB ESDI	280
520 MB Fujitsu SCSI/IDE 15ms	868
676 MB Maxtor	950
870 MB SCSI 3 1/2" Toshiba	999
1.7 GB Maxtor/SCSI	1190

MONITORS

15" Mag SVGA (1280x1024) 0.28	$555
15" MGC VESA 1280x1024 0.28	399
14" VGA Mono/Mono Monitor	105/92
14" SVGA .28 (1024x768)	245
14" SVGA .39 (1024x768)	215
14" VGA .52 (640x480)	185
Viewsonic 4 .28	290
Viewsonic 5E .28	394
Viewsonic 5+ .25	484
Viewsonic 6 Non .28	324
Viewsonic 6FX 15"	538
Viewsonic 7 .28	960
Viewsonic 8 .31	1510
Impression Non-In 1024x768 0.28	280
NEC 3FG/4FG/5FE	635/745/1190
Sony 1604s 16"/1304s	1025/549
Samsung 15" .28	485
Samsung 17" .26 (1280x1024)	895
Nanao 550W	1099
Mitac 17" Flat Screen NI	595

KEYBOARDS

101 Keyboard/Mini Keyboard	$22/16
Keytronic 101 Key	32
Fujitsu 101 Key 4700	40
Maxi-Switch 101 Key	30

MOTHERBOARDS + CPU

486DX-50 MHz/256K/CPU Micronics VESA	$992
486DX-66 MHz/128K/CPU ISA INTEL	645
486-50 MHz/256K/EISA & VESA INTEL	643
486-50 MHz/256K/ISA INTEL	563
486-33 MHz/256K/EISA INTEL	497
486-33 MHz/128K/ISA INTEL	399
486DX-50/256K/3 Local Bus/Intel	595
486DX-50/256K/2 Local Bus INTEL	595
486DX2-66/256K/2 Local Bus INTEL	666
386-40 MHz/128K Opti	149
386-33 MHz/128K Opti	149
486-33 MHz/128K/SX	325
386SX-33/25/16 CPU	99/78
286-12 MHz/CPU	55
3486DX-33/66 MHz/128K/No CPU	99
486DX-33 MHz/256K/2 Local Bus INTEL	465
3/486DX-33/66 MHz/256K 2 Local Bus	160

CARDS/HUBS

Ethernet 10 Base/16 Bit	$75
Ethernet 16 Bit Coax NE2000	60
Ethernet 8 Bit Coax NE1000	55
Ethernet 12 Port Hub	420

INTERFACE CARDS

IDE Controller Card VESA	$49
IDE Controller I/O Card (2S/1P/1G)	13
Floppy Controller MFM 1:1	29
2.88 FDC Controller Card	65
AT I/O 2S/1P/1G Card	15
Ultrastor 12C/24K (ESDI)/24F	190/439
Adaptec-1542B/1742 EISA SCSI	225/399
DTC 3280 SCSI Card	95
ET4000 VESA Local Bus 32 Bit	109
Genoa 7800 SVGA Local Bus 32 Bit	109
256K 1024x768 16 Bit	29
512K 1024x768 16 Bit	39
Oak/1MB 1024x768 16 Bit	49
8900C 1MB 1024x768 Trident	55
ATI Wonder VGA VL24/1 MB	99
ProDesigner IIS Sierra 1MB	129
Tseng Lab 1M 1280x1024 (ET4000)	84
Orchid Fahrenheit 1MB S3/VESA	179
SpeedStar Hi 24X 1MB	165
ATI Ultra PRO 2 MB VRAM VESA	365
ATI Ultra Plus w/2 MB	295
ATI Ultra w/1 MB VRAM/Mouse	245

MISC.

Mouse Hi-3 Button/Black	$10/14
Logitech Mouse/Trackball Mouse OEM	65/30
Logitech Bus Mouse OEM	65/40
230W Power Supply	45
Slim Case w/230W	68
Mini-AT Case w/PS	48
Mini-Tower Case w/PS	48
Full Tower Case/250W PS/Two Fans	98
MidTower Case w/PS	78
Sound Blaster Pro Card/Kit	165
Sound Card SC3000/Kit	75
250MB Tape Back-Up Archive	189
250 MB Colorado/120 MB DJ-10	210/155
Sony CD-ROM/Software/CD U31	335
NEC/Toshiba CD-ROM (SCSI)	469
Windows 3.1 w/System	45
MS DOS 6.0 w/System	45
1MB 70/80ns SIMM	31
4MB 70/80ns SIMM	139
256x9 70/80ns SIMM	11
256x4 70/80ns DIPS	4
80387-40 Cyrix	84
80387DX-40/33/25/16/ULSI	78
387SX-25/20/16	69

MODEMS

2400 Modem (9600 Send Fax)	$429
Fax Modem (9600/2400) R/S	49
14400/14400 Fax Modem Int/Ext V.42	155/195
9600/9600 Fax Modem Int V.42.	155
2400 Ext Modem	65

PRINTERS

Panasonic KX-P1123	$207
PanasonicKX-P1124i	284
HP 4 Printer & Toner	1379

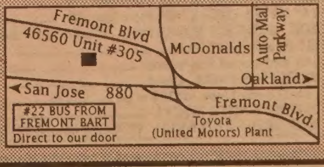
HARD/FLOPPY DRIVE

1.2 MB/1.44 MB Teac	$50/45
1.2 MB/1.44 MB Mitsumi	45/42
1.44 MB Sony	55
1.2/1.44 MB Epson	49/44
2.88 MB Teac	88
1.2/1.44 Teac Dual	129
1.2 MB/1.44 MB Teac Black	50/45

KING STAR COMPUTERS INC. 46560 FREMONT BLVD. #305 FREMONT, CA 94538
ONE YEAR WARRANTY PARTS & LABOR ON SYSTEMS

OPEN Mon-Fri: 8:30-5:30 Sat: 11:00-4:00
TEL: (510) 659-8590 Fax: (510) 659-8644

- Dealer Inquiries Welcome
- Prices Subject To Change W/O Notice
- Gov't PO's Welcome



ALL 100% GUARANTEED PARTS

WE ARE YOUR BEST SOURCE FOR COMPONENTS
WE WON'T BE UNDERSOLD!

WE WILL TRADE YOUR OLD MEMORY FOR NEW

SIMM MODULES

IBM COMPATIBLE

4M X 9-80	$125
4M X 9-70	139
4M X 9-60	149
1M X 9-10	28
1M X 9-80	33
1M X 9-70	35
1M X 9-60	37
1M X 3-80	30
1M X 3-70	33
1M X 3-60	35
256 X 9-10	8
256 X 9-80	9
256 X 9-70	11
256 X 9-60	12

APPLE/MAC

1M X 8-10	$28
1M X 8-80	31
1M X 8-70	33
4M X 8-80/70	124

DRAM

1M X 1-80	$3.70
1M X 1-70	3.80
1M X 1-60	3.90
1M X 4-80/70	17.00
256K X 1-80	1.65
256K X 1-70	1.80
256K X 1-60	1.95
256K X 4-80	3.95
256K X 4-70	4.15
256K X 4-60	4.30

CPU'S

486DXII-66 INTEL	$499
486DXII-50 INTEL	399
486DX-50 INTEL	439
486DX-33 INTEL	297
486DX-25 INTEL	247
486SX-25 INTEL	139
486SX-20 INTEL	127
386DX-33 INTEL	75
386DX-40 AMD	69
386DX-25 INTEL	49
386DX-25 AMD	47
386SX-25 INTEL/AMD	34
386SX-20 INTEL	29
386SX-16 INTEL	24
386DX-20 INTEL	34

BUSINESS AND ECONOMY SYSTEM SPECIALS

486-50MHz	$1799
486-33 DLC	1149
386SX-16/25	989
386DX-25/33 64K CACHE	1299
486SX-20/25	1099
486DX-33	1699

ALL SYSTEMS INCLUDE:
Tower Case, 4MB, IDE Controller, 2SPG, 1.44FDD, HDD, 1MB SVGA Card, 28 CIR. Monitor, 101KB, Mouse, DOS

CALL FOR CUSTOM CONFIGURATIONS!

MOTHERBOARD W/0 CPU

486DX-50 W/256K CACHE	$125
486DX-33 W/64K CACHE	117
386DX-40 W/64K CACHE	107
386DX-33 W/64K CACHE	105
386SX-16 W/CPU	89
386SX-25 W/CPU	105
386SX-33 W/CPU	159

HARD DRIVES

CONNER	40MB IDE	$134
	80MB IDE	199
	120MB IDE	249
	200MB IDE	369
	340MB IDE	589
	544MB IDE	799
MAXTOR	80MB IDE	199
	130MB IDE	279
	360MB IDE	699
	340MB SCSI	649
	660MB	CALL
QUANTUM	52MB IDE	189
	120MB IDE	249
	240MB IDE	499
SEAGATE	40MB IDE	139
	105MB IDE	219
	130MB IDE	249
	200MB IDE	489
CDC	91.5MB SCSI	199
FUJITSU	540MB IDE	950

CALL FOR BEST PRICES ON SCSI & IDE HARD DRIVES NOT LISTED!

OPEN M-F 9-5:30 SAT 10-2

MONITORS

MONOCHROME 12"/14"	$75/99
MONO VGA 14"	119
14" SVGA 0.28	255
NON-INT SVGA 0.28	299
SONY 1304	589

FLOPPY DRIVES

1.2MB TEAC 5.25"	$51
1.2MB SAMSUNG 5.25"	49
1.44MB TEAC 3.5"	46
1.44MB SONY 3.5"	49

TAPE BACK-UPS

120MB COLORADO	$189
250MB COLORADO	249
500MB PORTABLE	CALL!

MATH CO'S

387DX 16-33 INTEL	$72
387DX INTEL	69
387SX 25,20,16	CALL
387DX 33,25,20 CYRIX	69
4167-33 WEITEC	499
4167-25 WEITEC	319
3167-33 WEITEC	199
3167-25 WEITEC	99

LASER PRINTER MEMORY

HP II &IID, CANON LBP-811 & LBP-811R, OLIVETTI PG 108 & PG 208	
1MB BOARD	$79
2MB BOARD	109
4MB BOARD	169
HP IIP, III, IIID	
1MB BOARD	79
2MB BOARD	109
4MB BOARD	169
IBM 4019 & 4019B	
1039136 1MB BOARD	105
1039137 2MB BOARD	139
1038675 4MB BOARD	299
IBM 2029e	
1MB	75
2MB	99
4MB	175
TI MICROLASER & MICROLASER PS	
1MB	85
PANASONIC KX-P4420, KX-P44501	
1MB BOARD	129
2MB BOARD	157
4MB BOARD	229
EPSON EPL-6000; TOSHIBA PAGELASER 6; PACKARD BELL PP9500; FACIT P6060; MANNESMAN TALLY 905; AT&T 593 LASER; NCR 6435 LASER	
1MB BOARD	155
2MB BOARD	160
4MB BOARD	260

TEL: 408-452-7700
FAX 408-452-7771
1630 OAKLAND RD. A208
SAN JOSE, CA 95131

MasterCard VISA

INTERNATIONAL MICRO DEVICES

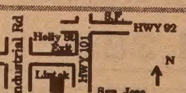
ASK ABOUT OUR SYSTEM LEASE PROGRAM

IMD Offers complete satisfaction with every transaction. Same day shipping. Prices subject to change without notice. All trademarks are the property of their respective owners.

Low cost Computer

Unbeatable Price !

One Year Parts And Three Years Labor Warranty



386SX/16 MHZ
1MBRAM (MAX 16MB)2S-1P-1M-1:1FD/HD, SYSTEM MOUSE PORT 80MB HD,3.5"FD(1.44MB) 101 KEYBOARD & MOUSE
SLIM CASE $488

Video Plus $268 Provides a Windowing Full Motion Video Display on Screen

386DX/40 MHZ
-128K CACHE
-4MB RAM
-3.5" & 5.25" FDD
-80 MB HDD
-512K WIN ACC. SVGA CARD
-101KEYBOARD & MOUSE
-14" SVGA (1024X768) .39
-MINI TOWER CASE /230 W.
$879

486DX/33 /66MHZ/ VL BUS
-256K CACHE
-4MB RAM
-3.5" & 5.25" FDD
-120 MB HDD
-1 MB WIN ACC. SVGA CARD
-101KEYBOARD & MOUSE
-14" SVGA (1024X768) .28
-MINI TOWER CASE /230 W.
$1250/$1485

Monthly Specials

14" SVGA (1024X768) Interlace .39	$195
14" SVGA (1024X768) Interlace .28	$232
IDE 2FD/2HD W/2S/1P/1G Winbond Chipset	$14
HI-Resolution Mouse	$12
101 Enhanced Keyboard	$16
512K/1MB SVGA Card	$35/$54
MiniTower Case W/230 w ps	$49
386SX/16 MHZ W/CPU	$55
REFURBISHED SVGA COLOR MONITOR	BEST

Entry Level Computer
286/12 MHZ
-1MB RAM
-5.25" FDD (1.2MB)
-IDE-I/O
-256K VGA
-101 KEYBOARD
-SLIM CASE $248

All System Dos 6.0 And Win 3.1 Pre-installed

Lintek Computer
969D Industrial
RD. San Carlos
CA 94070
Tel: 415-595-1095
Tel: 415-595-1096

Price Subject To Change W/O Notice.

CONTRIBUTORS

Kathleen Creighton is a longtime observer of the online scene. She can be reached via email as *casey@well.sf.ca.us*

Jennifer Robin Cherniss is a free-lance writer based in Berkeley.

John C. Dvorak is the host of a radio talk show and the author of many books, none, so far, about fuzzy logic.

Jonathan E. writes about world music for our sibling publication, *BAM*. He's been working with desktop multimedia since 1968.

Mitsu Hadeishi is the founder of Open Mind, a San Diego-based software company.

Paul Hoffman is an industry analyst who's been writing about microcomputer technology for ten years, and is the author of several books on computer-related topics.

Ed Kahn is a writer and consultant based in the San Fernando Valley.

Judy Malloy is an associate editor of *Leonardo* and *Leonardo Electronic News.*

Mike Markowitz works in computer support at a major Southern California university.

David Morgenstern is a BMUG volunteer and works in the library at San Francisco State.

Robert Moskowitz is a business consultant based in Woodland Hills. He writes frequently on productivity, office automation, and technology.

Douglas J. Nakakihara is an Amiga zealot who works as a CPA when he's not chasing down the latest cool technology.

Fabian Pascal is a Palo Alto independent teacher, consultant, and writer specializing in relational database management and SQL.

John S. Quarterman is the editor of *Matrix News* and a partner in Texas Internet Consulting. You can reach him at *mids@tic.com*

Tony Reveaux is the editor of *Computer Publicity News*, a contributing editor for *Artweek*, and the author of the MediaScan column in *Film/Tape World.*

Kevin Savetz is a recent college graduate seeking employment. You can reach him at *savetz@rahul.net*

David A. Simon, CPA (MS, Taxation), is in tax and accounting practice in Oakland and writes on a variety of business issues.

Norris Parker Smith is an East Bay free-lance writer specializing in communications, networking, hardware, and other computer-based issues.

Birrell Walsh works at KQED in San Francisco and writes about assorted interesting PC-related topics.

Jim Warren founded assorted time-honored institutions of the computer industry and currently serves on Autodesk's board of directors.

Wayne A. Yacco is a writer and consultant based in Burbank.

BUILD YOUR COMPUTER WITH US!

Learn to Build, Repair or Upgrade Your Own Computer!

Instant Service and Repair with our Technicians!

14.4/14.4
FAX DATA
MR. MODEM
$159
Limit 5 per store

SPECIAL
486DLC/33/64k
$179
Quantity Limited

DO IT YOURSELF SPECIAL

Build a 486DLC/33 MHz/ 64k SVGA Monitor System w/ 1MB, 2 Floppy Drives, 40MB Hard Disk	$757
Upgrades: 4MB memory/ 170MB Hard Disk	$110/85

LIFE-TIME WARRANTY!!

on the computer you build for as long as you own it!

See page 7 for details

You can go to any of Domino's 30 (& growing) stores for service.

SPECIAL PROMOTION

Sound on motherboard, comes with audio software. MADE IN USA

486SX/25 MHz	$310
486DX/33 MHz	$499

NEW INTRODUCTION!

Made in USA

DOMINO VLEISA Motherboard

ALLBUS design: 1 VESA local bus, 3 EISA bus, 4 ISA bus

486SX/25 MHz/128k (upgradable to 486DX)	$370
486/33 MHz/128k	$525
486/66 MHz/128k	$785
EISA IDE Controller	$CALL

DOMINO SELF SERVICE CENTERS

BERKELEY/EMERYVILLE
1552 Beach St. Ste. B
510 653-6286

SUNNYVALE
1214 Apollo Way Ste. 404-2
408 749-0216

CONCORD
1130D Burnett Ave.
510 682-8934
OPEN SUNDAY

DALY CITY
7317 Mission Street
415 994-7581

SAN FRANCISCO
3400 Geary Blvd.
415 668-9311
OPEN SUNDAY

CAMPBELL
486 E. Campbell Ave. Ste 102
408 374-7477
OPEN SUNDAY

SANTA ROSA
1740 Santa Rosa Ave.
707 523-2055
OPEN SUNDAY

HAYWARD
26222 Industrial Blvd.
510 732-0377

LOS ALTOS
111 Plaza North
415 941-7778

SAN RAFAEL
757 Lincoln Ave., Ste. 30
415 453-8525

MILPITAS
976 Hanson Court
408 946-6991

VALLEJO
480 Redwood St., Ste. 41
707 644-5055
OPEN SUNDAY

SAN RAMON
2217 San Ramon Valley Blvd., Ste C
510 820-6022

MILLBRAE
231 Millbrae Ave., Ste 101
415 259-8080

BLOSSOM HILL
461 Blossom Hill Rd., Ste H-1
408 363-1800

SANTA CLARA
2536 Seaboard Ave.
408 955-9290

SACRAMENTO
3019 Arden Way
916 972-0311

NEW FROM OUR DOMINO BUSINESS CENTERS...

SPEAR® All-In-One VGA Systems

Systems come with the following features:

- 1.2MB floppy and 1.44MB floppy
- 170MB hard disk
- 2 serial, 1 parallel, 1 game
- 1280 x 1024 True Color SVGA card 1MB
- VL SVGA Card for VL Systems
- Super VGA monitor (.28 pitch)
- DOS 6.0, 3-button mouse & mouse pad
- Hard disk loaded with spreadsheet, word processing, DOS tutor, and many more

Memory upgrade: per MB	$41
CD-ROM (5 titles) special upgrade:	$290
Laser printer	Add $605
24 pin printer	Add $215

SPEAR 386SX/25/2MB	$1048
SPEAR 486DLC/33/64k/4MB	$1228
SPEAR 486/33/128k/4MB VL/EISA All Bus w/EISA IDE Controller	$1748
SPEAR 486DX2/66/128k/8MB VL EISA/ISA ALLBUS w/ EISA IDE Controller	$2188

Domino MPC System $1318
486SX/25/4MB, Sound on motherboard.
Comes with audio software

Specialized in Novell and UNIX Networks

NOVELL
Authorized Dealer
Call for Free Consultation
For SBT Accounting Computerization

Domino Computer Network Service Group
510-623-7181

100% Financing Available for both home & corporate users.

Prices subject to change w/o notice. Not responsible for typographical errors

SUNNYVALE
1214 Apollo Way Ste. 404-2
408 749-0216

FREMONT
46573 Mission Blvd.
510 623-7181

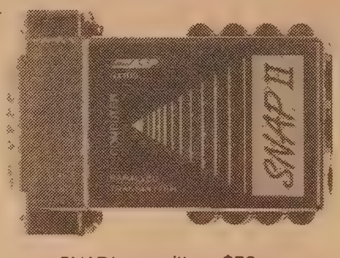
OAKLAND
1238 Harrison
510 839-1800

PLEASANTON
6700 Santa Rita, Ste. D
510 847-1771

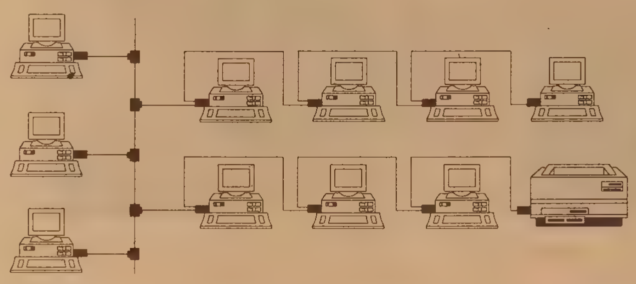
DOMINO CLEARANCE CENTER
Located in our Fremont Store

Domino

Hassle-Free Printer Sharing
Low-cost, modular printing network for up to 20 computers


SNAP transmitter - $59

SNAP receiver - $69



Here's how your printer sharing network can grow with your office. It's called *SNAP*. Simply plug a transmitter to the parallel port of each computer, a receiver to the printer and connect with up to 1400 feet of modular phone cable. As you add computers to your office, you simply "snap" them in anywhere along your existing *SNAP* network. *SNAP* lets you connect up to 20 computers to a printer or printer sharing device. 3-way couplers provided by ASP let you connect the computers in any configuration. Installation is a snap!

SNAP requires no software and no training! What could be easier? Everyone prints as they did before. No one has to move his or her furniture. In other words, *SNAP* is an instant network!

ASP offers a complete line of printer sharing solutions. To order your *SNAP* or for a dealer near you call:

800-445-6190
Dept. WJCQJ

ASP
ASP COMPUTER PRODUCTS, INC.
160 San Gabriel Drive, Sunnyvale, CA 94086
Phone: (408)746-2965, *FAX:* (408)746-2803
European Headquarters
La Boursidiere, RN186-BP109
92357 LE PLESSIS ROBINSON CEDEX, FRANCE
Phone: (33-1) 41-07-91-70, *FAX:* (33-1)41-07-91-79

Made in America

SNAP is a trademark of ASP Computer Products, Inc.

DISCOVER THE CUPERTINO COMPUTERS DIFFERENCE!
LARRY WOOD - OWNER

386DX-40C128	$369
486DLC-33C128	409
486DX-33C128	629
486DX-50C128	759
486DX2-66C128	869
486DX-33 VESA LB	659

1 YEAR PARTS, 3 YEAR LABOR WARRANTY ON ALL SYSTEMS
MON-FRI 10:00-6:00
SATURDAY 11:00-4:00
SALE PRICES FOR CASH CUSTOMERS NO CREDIT CARDS
Corporate P/O's Welcome
Prices & availability subject to change w/o notice

STANDARD SYSTEM: Motherboard & CPU, 1 MB RAM, Desktop or Mini-Tower Case, 230 Watt Power Supply, 101 Key Enhanced Keyboard, 2 Hard/2 Floppy Disk 1:1 Controller Card, AMI Bios, 1.2 or 1.44 MB Floppy Drive, 2 Serial/Parallel/Game I/O Ports.

CUPERTINO COMPUTERS INC.
10675 S. DE ANZA BLVD., CUPERTINO, CA 95014
TEL: (408) 255-5997 FAX: (408) 255-7699

Bay Area's Computer Magazine
MICROTIMES

BPA

EDITOR-IN-CHIEF
Dennis Erokan
PUBLISHER
Chuck Stanley
EDITORIAL 510-934-3700
EDITOR Mary Eisenhart
ASSISTANT EDITOR Michael Robin
NEWS EDITOR Paul Hoffman
SENIOR DESIGNERS Rick Colby, Monika Lukenbill
CONTRIBUTING EDITORS Lenny Bailes, John Perry Barlow, John C. Dvorak, Jonathan E., Bennett Falk, Mitsu Hadeishi, Ed Kahn, Mitchell Kapor, Matthew Leeds, Mike Markowitz, Brock Meeks, David Morgenstern, Douglas J. Nakakihara, Tony Reveaux, Birrell Walsh, Jim Warren, Wayne A. Yacco
CONTRIBUTING WRITERS Mikael Blaisdell, Jennifer Robin Cherniss, Anna Couey, Kathleen Creighton, Adam Gaffin, Rich Grace, Peter John Harrison, Fred Lieberman, Woody Liswood, Robert Moskowitz, Kevin Savetz, David A. Simon, CPA, John Wolcott
BBS RESEARCHER David Remus
CONTRIBUTING PHOTOGRAPHERS Jay Blakesberg, Michael Jay, Susana Millman, Ann Summa, Paul Winternitz
ADVERTISING 510-934-3700
DIVISION BUSINESS MANAGER Amy Barrett
SALES MANAGER Cynthia Lapporte (Southern California)
AD DIRECTOR Greg Sage
SENIOR ACCOUNT DIRECTOR Barry Green (Northern California)
NATIONAL ACCOUNT DIRECTOR Jane Shepherd (Southern California)
ACCOUNT EXECUTIVES Marty Gillow, Tracy Longo, Ken Marson, Debra Siegel, Chloe Vezo
CLASSIFIED & SUBSCRIPTION MANAGER Jennifer Kosta (Northern California)
ADVERTISING SERVICES ASSISTANT Carolyn Guerrero (Northern California)
PRODUCTION
GROUP PRODUCTION DIRECTOR Richard Lesovoy
GROUP PRODUCTION MANAGER Mary Beth DeSantis
PRODUCTION ASSISTANT Wendy Sloneker
TRAFFIC ASSISTANT Matt Matuska
ART STAFF Jennifer Bagwell, Donna Bogener, Paul Dorian, Gigi, Robyn Hartt, Michelle Logan, Cheryl McGrath, Stephen Noetzel, Mark Ray, Diane Wallace
CAMERA OPERATOR John Moorehead
PROOFREADER John Downen
TYPESETTING The Typesetting Shop, Inc.
ADMINISTRATION
CONTROLLER Patricia Buck
SENIOR ACCOUNTANT Linda May
ACCOUNTING Joaquin Arellano, Kim Carrington, Vickie Liu, Brian Murray, Bonnie Peterson
CREDIT MANAGER Doug Morgan
HUMAN RESOURCES DIRECTOR Erica Stein-Oakley
L. A. OFFICE MANAGER Deborah Daiken
ADMINISTRATIVE ASSISTANTS Christine Garcia, Leta Jesch
L. A. ADMINISTRATIVE ASSISTANT Melissa Cichocki
DISTRIBUTION 510-934-3700
DISTRIBUTION MANAGER John Erokan
Assistant Manager/LA Art Holland
DISTRIBUTION ASSISTANT Tami Martin
DISTRIBUTION CLERK Virgil Cecilio
FIELD COORDINATORS Roe Eyth, Frank Grygus
DISTRIBUTION Dennis Anderson, John Clefstad, Don Karr, Juan Lau, Jac Michanovic, Robbie Myers, Curtis Ng, Kelly Orr, Joseph Rafalo, Reliable Circulation, John Dimas Rezendes, SPS, Wilfredo Villarroel
PUBLICATIONS BAM Magazine, DRIVE! Magazine, SF Downtown

40

This Vol. 10 No. 6 May 31, 1993, Whole No. 109 MicroTimes, California's Computer Magazine, is published by BAM Publications, Inc., 3470 Buskirk Ave., Pleasant Hill, CA 94523. Phone Advertising Office (510) 934-3700. Los Angeles Office, 6767 Forest Lawn Drive, Suite 110, Los Angeles, CA 90068. Phone (213) 851-8600. San Jose Office, 36 Harold Ave., Suite 2, San Jose, CA 95117. Phone (408) 244-4400. Anaheim Office, 801 East Katella Ave., Suite #210, Anaheim, CA 92805. Phone (714) 939-2809. MicroTimes™ is ©1993 by BAM Publications, Inc. Subscription rates: 13 issues, U.S.: 3rd Class $32 (Allow 3 to 4 weeks for delivery), 1st Class $60 Allow 1 to 2 weeks for delivery). MEXICO & CANADA: Surface Mail $50 (Allow 4 weeks for delivery). Air Mail $70 (Allow 1 week for delivery). OVERSEAS: Surface Mail $50 (Allow 6-10 weeks for delivery), Air Mail $165 (Allow 1 week for delivery). To receive sample issues, please send $4 ($6 for overseas) to cover postage costs. Back issues are $6 each. All rights reserved. Reproduction in whole or in part without permission of Publisher is strictly prohibited. The staff and management of MicroTimes do not advocate or encourage the use of any product or service advertised herein for illegal purposes.

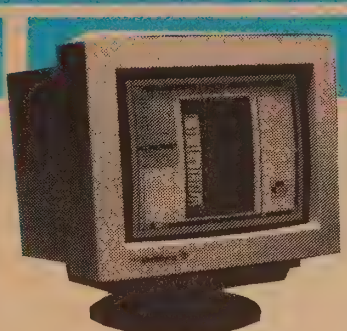
Computerland of Serramonte WAREHOUSE OUTLET

Bring in this ad to receive these prices.

LOWEST IN THE BAY AREA !

APPLE

Powerbook 160 4/40, 25Mhz/ 68030, 4MB	$2160
Powerbook 180 4/80, 33Mhz/ 68030, 4MB	3655
Powerbook DUO 210 4/80, 25Mhz/68030	2000
Powerbook DUO 230 4/80, 33Mhz/68030	2320
Mac Centris 610 4/80, 20Mhz, 68040	1570
Mac Centris 650 4/80, 25Mhz, 68040	2240
Mac LC III 4/80, 25Mhz, 68030	1195
Mac LC III 4/160, 25Mhz, 68030	1332
Mac Color Classic 4/80, 16Mhz, 68030	1320
Mac QUADRA 800 8/230, 33Mhz, MATH	3750
Mac Classic II, 68030/16Mhz, 40MB,4MB	885
Powerbook 145 4/40, 25Mhz, 40MB HD	1905
LaserWriter PRO 600 W/Photograde	1865
LaserWriter IIG (8MB) BDL 3	2045
LaserWriter Select 300 W/Toner, 300	725
StyleWriter II	304

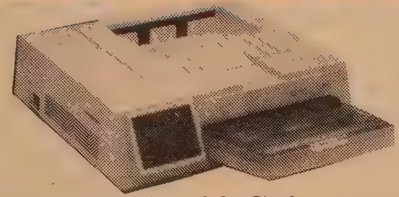


Multisync 3FGX, SVGA, Analog Color, 15"	$599
Multisync 4FG, SVGA, Analog Color, 15"	710
Multisync 5FG, SVGA, Color, 17" Flat	1285

TOSHIBA

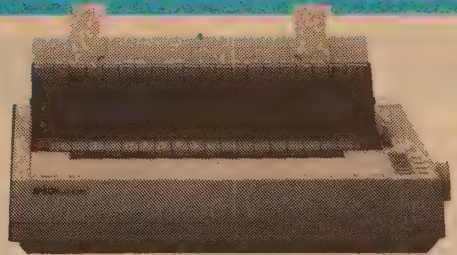
T4400SX/80 486SX/25, 2MB RAM, 80MB HD	$2185
T4400SX/80 Plasma 486SX/25, 2MB RAM	2355

OKIDATA



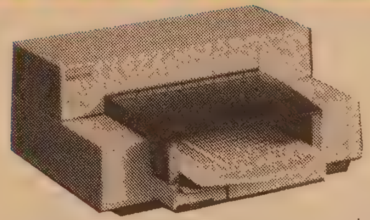
ML590, 24-Pin, 80 Col, 360/120 CPS	$420
ML520, 9-Pin, 80 Col, 430/320/80 CPS	362
ML320, 9-Pin, 80 Col, 300/62 CPS	295
ML321, 9-Pin, 132 Col, 300/62 CPS	410
OL400 Page Ptr, 4PPM, PAR, 512K, 300DPI	592
OL810 Page Ptr, 8PPM, PAR, 1MB	905

NEC EPSON



Action Laser 1000, 512K, 6PPM, 300DPI	$655
FX-1050, 9-PIN, 132 COL, 264/54CPS, PAR	360
LQ-2550, 24-PIN, 136 COL, 400/133CPS, SE	899
LQ-860, 24-PIN, 80 COL, 295/98CPS, PAR	560
LQ-870, 24-PIN, 80 COL, 330/110CPS, 8KB	445
LQ-1170, 24-PIN, 136 COL, 330/110CPS, 8K	610
LQ-1070, 24-PIN, 136 COL, 252/84CPS, 8KB	355
EPL-8000 Laser Printer, 10PPM, PAR/SER	1095

HEWLETT-PACKARD



DeskJet 500	$340
DeskWriter 550C Color 2-Pen Inkjet	685
LaserJet 4 8PPM 600DPI 2MB W/Toner	1375
DeskWriter Inkjet F/MAC 2PPM Serial	310
DeskWriter C Color Inkjet F/MAC	482
LaserJet 4L	664

ComputerLand
Business to Business, Person to Person

Phone: (415) 615-9020
Fax: (415) 615-0844

ComputerLand of Serramonte
WAREHOUSE OUTLET
415 South Spruce Avenue
South San Francisco, CA 94080

Hours: 8:30-5:30
Corporate Inquiries Welcome

Expires June 28, 1993

[illegible]
Prices Subject to Change without Notice

Must bring this ad in to receive these prices.

No Dealers Wholesale
Not responsible for typographical errors

MDS
Quality Everywhere

MICROLINK

HOURS:
MON-FRI 9-6
SAT 10-5

WARRANTY: 2 YEARS ON MOTHERBOARD

VESA LOCAL BUS SYSTEMS

486SX-33

- 33MHz 486SX Intel Processor w/ZIF Socket (Upgradable to Pentium)
- 4MB RAM/256K Cache
- Teac 5.25" & 3.5" Diskette Drives
- 130MB 15ms IDE Hard Drive
- Local Bus 32-Bit IDE Interface
- VESA (32) Local Bus 24-Bit Hi-Color SVGA w/1MB
- 14" Color SVGA 1024 NI .28 (70Hz)
- Middle Tower Case w/250W Power
- 8 16-Bit ISA Slots, 2 with 32-Bit VESA Local Bus
- 101-Key Keyboard
- MS-DOS, Windows & Mouse

$1499

Pentium Ready

486DX-33

- 33MHz 486DX Intel Processor w/ZIF Socket (Upgradable to Pentium)
- 4MB RAM/256K Cache
- Teac 5.25" & 3.5" Diskette Drives
- 130MB 15ms IDE Hard Drive
- Local Bus 32-Bit IDE Interface
- VESA (32) Local Bus 24-Bit Hi-Color SVGA w/1MB
- 14" Color SVGA 1024 NI .28 (70Hz)
- Middle Tower Case w/250W Power
- 8 16-Bit ISA Slots, 2 with 32-Bit VESA Local Bus
- 101-Key Keyboard
- MS-DOS, Windows & Mouse

$1628

Pentium Ready

486DX-50

- 50MHz 486DX Intel Processor w/ZIF Socket (Upgradable to Pentium)
- 4MB RAM/256K Cache
- Teac 5.25" & 3.5" Diskette Drives
- 130MB 15ms IDE Hard Drive
- Local Bus 32-Bit IDE Interface
- VESA (32) Local Bus 24-Bit Hi-Color SVGA w/1MB
- 14" Color SVGA 1024 NI .28 (70Hz)
- Middle Tower Case w/250W Power
- 8 16-Bit ISA Slots, 2 with 32-Bit VESA Local Bus
- 101-Key Keyboard
- MS-DOS, Windows & Mouse

$1745

Pentium Ready

486DX2-66

- 66MHz 486DX2 Intel Processor w/ZIF Socket (Upgradable to Pentium)
- 4MB RAM/256K Cache
- Teac 5.25" & 3.5" Diskette Drives
- 130MB 15ms IDE Hard Drive
- Local Bus 32-Bit IDE Interface
- VESA (32) Local Bus 24-Bit Hi-Color SVGA w/1MB
- 14" Color SVGA 1024 NI .28 (70Hz)
- Middle Tower Case w/250W Power
- 8 16-Bit ISA Slots, 2 with 32-Bit VESA Local Bus
- 101-Key Keyboard
- MS-DOS, Windows & Mouse

$1898

Pentium Ready

ISA SYSTEMS

386DX-33/40

- 33/40 MHz 386 Processor
- 4MB RAM/64K Cache
- Teac 5.25" & 3.5" Diskette Drives
- 80MB 17ms IDE Hard Drive
- SVGA Card w/1MB
- 14" Color SVGA Monitor .28
- Mini Desktop Case
- 8 16-Bit ISA Slots
- 101-Key Keyboard
- MS-DOS, Windows & Mouse

$1118

486SX-25

- 25MHz 486SX Intel Processor
- 4MB RAM/128K Cache
- Teac 5.25" & 3.5" Diskette Drives
- 120MB 15ms IDE Hard Drive
- SVGA Card w/1MB
- 14" Color SVGA Monitor .28
- Middle Tower Case w/250W Power
- 8 16-Bit ISA Slots
- 101-Key Keyboard
- MS-DOS, Windows & Mouse

$1288

486DX-33

- 33MHz 486DX Intel Processor
- 4MB RAM/128K Cache
- Teac 5.25" & 3.5" Diskette Drives
- 130MB 15ms IDE Hard Drive
- SVGA Card w/1M B
- 14" Color SVGA Monitor .28
- Middle Tower Case w/250W Power
- 8 16-Bit ISA Slots
- 101-Key Keyboard
- MS-DOS, Windows & Mouse

$1428

486DX-50

- 50MHz 486DX Intel Processor
- 4MB RAM/256K Cache
- Teac 5.25" & 3.5" Diskette Drives
- 130MB 15ms IDE Hard Drive
- SVGA Card w/1MB
- 14" Color SVGA Monitor .28
- Middle Tower Case w/250W Power
- 8 16-Bit ISA Slots
- 101-Key Keyboard
- MS-DOS, Windows & Mouse

$1548

UPGRADES & OPTIONS

Deluxe MULTIMEDIA

- Texel CD-ROM Drive (265ms, 300KB/S, SCSI-2 Compliant, Self Cleaning Lens)
- 2 Caddys
- CD-ROM Device Driver & DOS Extensions
- Sennheiser Stereo Headphones
- Spectrum 16 16-Bit Stereo Soundboard
- Labtec Amplified Digital Stereo Speakers
- Labtec AM-22 Deluxe Microphone
- Labtec Compact Disc Cleaning System
- 13 CD Titles (Encyclopedia, Carmen San Diego Deluxe, Sierra's King's Quest V...)

$895

STORAGE & MISC.

On-Board Memory	$40/MB
85 to 130MB HDD	$50
130 to 210MB HDD	$100
210 to 250MB HDD	$30
250 to 340MB HDD	$260
340 to 500MB HDD	$300
SCSI HDD's	CALL
CPU Heatsink/Fan	$15/25
2400 Modem	$39
9600/2400 Fax/Modem	$60
9600/9600 Fax/Modem	$165
9600/14400 Fax/Modem	$179
14400/14400 Fax/Modem	$189

DISPLAY

Upgrade from VESA SVGA to Fahrenheit VLB	$99
Diamond Stealth VLB	$109
ATI Pro II/2MB VRAM	$340
Diamond Viper VLB	$380
14" 1024I to 14" 1024NI	$45
14" 1024NI to 15" 1280NI	$145
15" 1280NI to 17" 1280NI	$395
NEC & Other Brands	Call

NOTEBOOKS

4MB to 8MB RAM	$220
4MB to 20MB RAM	$1000
120MB to 210MB HDD	$220
Pocket Fax/Modem	$120
Docking Station	$295
Extra Battery	$99

Twinhead Upgrade Options . . . . . Call

CALL FOR CUSTOMIZED CONFIGURATION AND LOCAL AREA NETWORKS

Check With Your Local Better Business Bureau!

Since we've been in the business for 8 years, MDS knows how to build your system right the first time. Our satisfied customers include NASA, PG&E, Stanford University, Pacific Bell, National Semiconductor, AMD, Stanford Federal Credit Union, Wells Fargo Bank and many more...

SANTA CLARA
3472 El Camino Real
Santa Clara, CA 95051
800-675-5465
408-261-0628
Fax: 408-261-0639

SAN FRANCISCO
3210-3212 Geary Blvd
San Francisco, CA 94118
800-748-6323
415-750-0650
Fax: 415-750-0649

BERKELEY
2324 Shattuck Avenue
Berkeley, CA 94704
800-938-8283
510-540-8283

SACRAMENTO
6644 Fair Oaks Blvd
Carmichael, CA 95608
916-488-8523

• 1 Year on Other Parts • 3 Years on Labor

0% Financing No Payments Until August

Corporate Choice!

MONTHLY SPECIAL
Archive/Colorado
Tape Back-up, 250MB
$160 with
System Purchase

NICE VESA EISA 486

- Intel 486 Microprocessor
- American-made Motherboard
- 3 EISA, 5 ISA, 2 VL-Bus Slots
- Built-in Math Co-Processor
- Full Tower w/UL 250W & Speed Display
- AMI BIOS with built-in Setup Utilities
- 256K of 20ns Cache, exp. to 1MB
- 8MB of 70ns RAM, exp. to 128MB
- 210MB 15ms IDE Hard Drive
- TEAC 1.2 and 1.44MB Floppy Drives
- VESA 32 Bit SVGA Graphic Card
- VESA 32 Bit IDE Controller
- MAG 15" Non-Interlaced SVGA Color Monitor (Flat Screen, 1280x1024, 0.28, 76Hz Refresh Rate, PC Magazine Editor's Choice)
- 101 Enhanced-Style Keyboard
- 2 Serial /1 Parallel /1 Game Ports
- Free Microsoft DOS 5.0 & Windows 3.1
- Free 3-Button Hi-Resolution Mouse

486DX-33MHz	$2399
486DX-50MHz	$2569
486DX2-66MHz	$2699

NICE SUPER EISA 486

- Intel 486 Microprocessor
- American-made 6 Layer Motherboard
- 8 EISA, 1 VL-Bus Slots
- Built-in Math Co-Processor
- Full Tower w/UL 250W & Speed Display
- AMI BIOS with built-in Setup Utilities
- 256K of 20ns Cache, exp. to 1MB
- 8MB of 70ns RAM, exp. to 256MB
- 120MB 15ms IDE Hard Drive
- TEAC 1.2 and 1.44MB Floppy Drives
- VESA 32 Bit Fahrenheit Windows Accelerator
- EISA 32 Bit IDE Controller
- MAG 15" Non-Interlaced SVGA Color Monitor (Flat Screen, 1280x1024, 0.28, 76Hz Refresh Rate, PC Magazine Editor's Choice)
- 101 Enhanced-Style Keyboard
- 2 Serial /1 Parallel /1 Game Ports
- Free Microsoft DOS 5.0 & Windows 3.1
- Free 3-Button Hi-Resolution Mouse

486DX-33MHz	$2549
486DX-50MHz	$2719
486DX2-66MHz	$2809

Twinhead NoteBooks

Twinhead NOTEBOOKS

Standard Features:

- Two Serial Ports
- One Parallel/External Floppy Drive Port
- One External SVGA Port
- One External Keyboard Port
- One 100-pin Expansion Port
- Optional Internal 96/24 Fax/Modem
- 120V/240V AC/DC Adapter/Charger
- FREE MS DOS 5.0 and MS Windows w/Manuals
- One Year Warranty Service by Twinhead

486DX/33T

- 4MB RAM expandable to 20MB
- 130MB Hard Drive (200MB Available)
- 3.5" 1.44MB Floppy Drive
- 8.5" Active Color Matrix. 256 Colors, 512KB video RAM
- 8.5" x11"x 1.8" 6.3lbs w/Battery
- FREE Internal Trackball

$4050

Passive Matrix Available-Call for Details

486DX/33M

- 4MB RAM expandable to 20MB
- 130MB Hard Drive (200MB Available)
- 3.5" 1.44MB Floppy Drive
- 10" Paper White Display. 64 Shades of Gray, 256KB video RAM
- 8.5" x11"x 1.6" 5.8lbs w/Battery
- FREE Internal Trackball

$2350

Color Notebooks

NTC NOTEBOOKS

MONO 486DX-33

- 33MHz 486DX Intel Processor
- 4MB RAM (exp. to 8 or 20)
- 3.5" Diskette Drives
- 120MB IDE Hard Drive
- Size 11"x8.5"x2" 6.3lbs
- 2 Serial, 1 Parallel Ports
- Carrying Case, Numeric Pad
- 1 Year Parts & Labor

$2195

Color 486DX-33

- 33MHz 486DX Intel Processor
- 4MB RAM (exp. to 8 or 20)
- 3.5" Diskette Drives
- 120MB IDE Hard Drive
- Passive Color 8.5" VGA Screen
- Size 11"x8.5"x2" 6.6lbs
- 2 Serial, 1 Parallel Ports
- Carrying Case, Numeric Pad
- 1 Year Parts & Labor

$2795

Lunchbox Portables Available . . . . . CALL

NANAO, NEC, SONY, MAG, ATI, ORCHID, DIAMOND, VIEWSONIC, TEXEL

Need repairs on old computers and laptops? Call us.
We service all name brands and OEMs at hard-to-believe prices.

◆ MACINTOSH AND PC COMPATIBLE ◆

"An Unbeatable Combination of Price and Performance"

MacWEEK 1/20/92

NEW LOW PRICE!

Just $895

If you've been waiting for just the right combination of speed, PostScript® compatibility and price to buy a new laser printer, wait no more! Now the LX-29000™ from the Printer Works is just $895!

✔ Very fast with Microsoft's Windows 3.1!

Thanks to a powerful AMD 29000 32-bit RISC processor and the ability to rasterize TrueType fonts in native mode, the LX-29000 is a dazzlingly fast performer with Microsoft's Windows 3.1.

✔ PostScript® & HP LaserJet compatible!

The LX-29000 comes with 35 typefaces and uses Microsoft's TrueImage for full compatibility with PostScript, the professional standard for graphics and typesetting. It accepts Adobe Type 1 and 3 fonts as well as TrueType fonts. It works great with Windows 3.X, Apple System 7 and all Mac and PC software that supports PostScript or TrueImage printing. And its HP emulation easily handles non-PostScript printing.

✔ Uses Canon's dependable LX engine

The LX-29000 uses the same lightweight, small-footprint, 300 dpi, 4 ppm Canon LX engine used by HP, Apple and QMS, so supplies and service are never a problem. And Canon's patented all-in-one cartridge eliminates all that toner mess!

✔ For PC, Mac and Others!

Prints from your IBM PC or Macintosh via Centronics, RS-232C or AppleTalk interfaces. Interface selection is automatic. The LX-29000 comes with 2 megabytes RAM, a universal paper tray and a toner cartridge.

✔ Printers are our business!

We've been in business since 1982, so you can be assured that we know printers. Our prices are lower than most because we sell directly to you—no middleman! We offer a full 30-day money-back guarantee, a one year warranty on all parts and labor, plus free phone support.

PC World said "...the LX-29000 delivers graphics quickly, finishing first on our PageMaker and Excel tests."

Publish magazine said "Not only does this direct-mail printer carry the smallest price tag of the six printers we tested, but we found that it prints the cleanest text as well as sharp, smooth graphics."

MicroTimes said "...(If you are) searching for a 'faster! better! cheaper!' laser printer...examine this printer"

Postscript Printer Comparison Chart

	Engine	RISC Processor	Simultaneous Interfaces	Universal Paper Tray	Money Back Guarantee	Street Price	Price Difference
LX-29000	Canon	YES	YES	YES	YES	$895	
NEC Model 95	Minolta	NO	YES	YES	NO	$1,450	$555
QMS-PS 410	Canon	NO	YES	YES	NO	$1,480	$585
HP IIIp w/Postscript	Canon	NO	NO	YES	NO	$1,589	$674
Apple Personal NTR	Canon	YES	YES	YES	NO	$1,679	$784
IBM 4029/8P	Lexmark	NO	NO	NO	NO	$1,695	$800

ORDER TOLL FREE
1-800-225-6116

VISA

30 DAY MONEY BACK GUARANTEE

the PRINTER WORKS

3481 Arden Road, Hayward, California 94545

INDUSTRY INSIGHT

A Bad Month For Intel: AMD's 486, Low-Power R4000, Motorola's PowerPC

BY PAUL HOFFMAN

April was not a good month for Intel. The giant chip-maker saw many companies attacking it from all sides, and the stock market started to get the hint by dropping its stock by almost 20%. Although no one expects Intel to lose its position as the biggest supplier of CPUs, it will have to fight much harder for that title in the future.

In the middle of April, a judge overturned Intel's previous victory against AMD in a major case. Earlier, a jury had ruled against AMD in a case in which Intel had claimed that AMD's license did not allow them to copy Intel's chips. In that ruling, the jury decided that the original agreement between AMD and Intel allowed AMD to copy Intel's "microcode" for the 80287 chip, but not to distribute it. However, Intel (knowingly or unknowingly) withheld internal Intel documents from AMD's lawyers before the trial.

With an estimated 100,000 chips in stock, AMD can quickly help manufacturers who are very low on Intel's priority list to get new 486-based systems on the market.

Judge William Ingram of the US District Court ruled that those documents could have had a significant effect on the case. He said that the documents "would all have been admissible as party admissions and should have been produced before trial. The failure to produce them substantially interfered with AMD's discovery and trial presentation. Moreover, the non-production prevented AMD from fairly presenting its defense." The judge was clearly unimpressed with Intel's reasons for not giving the documents to AMD, and went on to say that "The trial value of the documents in question is obvious." He granted AMD's request for a new trial, which unfortunately may be years away.

Copyright © 1993 by Paul Hoffman. All rights reserved. Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on Internet (phoffman @well) or CompuServe (71545,346). He also writes popular microcomputer books.

AMD responded to the good news by beginning to ship its stock of cloned 486 CPUs to customers. The chips, called AM486, are exact copies of Intel's chips, with few additions made for advanced features. AMD had manufactured the chips earlier with the expectation of shipping them, but couldn't sell them after the earlier ruling. With an estimated 100,000 chips in stock, AMD can quickly help manufacturers who are very low on Intel's priority list to get new 486-based systems on the market.

AMD now is so sure that the new case will go against Intel that it is shipping the possibly-infringing chips immediately. After the earlier case, AMD had begun to create 486 clones that are probably more defensible in a future case because they are not based on Intel's microcode, but those chips won't be ready in quantity until late summer or early fall.

Unfortunately for consumers, AMD's prices are the same as Intel's, so the new chips won't lower the average cost of systems. The chips will be attractive to only a few manufacturers who already do not rely completely on Intel, and who have good relations with AMD for its 386 chips. AMD is taking advantage of the very high profit margin on the chips and the fact that, until the ruling, most companies expected to have to pay Intel's high price.

Intel followed AMD's announcement with its own, saying that it would deliver dozens of new 486 models this year. Although the huge number of different models should keep some manufacturers happy, it will hinder Intel in the consumer marketplace by giving the average user far too many choices among similar-sounding machines. Further, Intel's customer base is starting to revolt against Intel's allocation rules for the still-not-shipping Pentium and low-power 486 chips. Zenith, a major PC manufacturer who is particularly strong in the government market, has said publicly that they are looking at Intel's competitors for new CPUs. This is the first admission by a major manufacturer that Intel may not be the only name on CPUs in their systems.

While Intel may be flooding the market with different styles of 486s, other chip makers will be introducing non-Intel CPUs that will start to compete on the high end, where Intel makes much of its money. The market for the Pentium chip is about to become more crowded. MIPS announced that it will be much easier to build high-end notebooks using R4000 clones running Windows NT than it will be to build Pentium notebooks. Two manufacturers will sell chips (and MIPS will sell design kits) that use CPUs that draw only 2-3 watts of power. On the other hand, Pentium is expected to draw over five times as much, making it completely unusable in a notebook due to the much quicker battery drain. Both of the chips will allow NT users to buy systems that are as powerful as Pentium desktop computers, but are portable and cost about the same.

Motorola is not letting up on Intel, either. It recently announced its new PowerPC RISC chips at prices significantly below Pentium. Although there is, so far, no operating system for the PowerPC, it is widely expected that Microsoft will port Windows NT to it very soon and the PowerOpen UNIX operating system should be available next year. If Motorola can keep the prices for the chip low relative to Pentium, PowerPC systems could make the low-end RISC system market much harder for Intel to penetrate.

SCO SETTLES HARASSMENT SUITS, FILES TO SELL STOCK

The Santa Cruz Operation, one of the largest vendors of UNIX operating system software, settled the lawsuits against it for the actions of its founder and president, Larry Michels (MicroTimes #105). The amount and other

CALIFORNIA
Computer
Show
& Sale

LOWEST PRICES
IN THE USA!
PC Compatibles • Hardware
• Software • Accessories

UPCOMING
SHOWS

COW PALACE TWO DAY SHOW!
June 5&6, 1993 • Corner of Geneva & Santos, SF

OAKLAND COLISEUM
June 12, 1993 • I-880 & Hegenberger

SANTA CLARA COUNTY FAIRGROUNDS
June 19, 1993
344 Tully Rd., San Jose

SAN MATEO EXPO CENTER
June 26, 1993 • 2495 S. Delaware, San Mateo

SANTA CLARA COUNTY FAIRGROUNDS
July 10, 1993 •
344 Tully Rd., San Jose

RANCHO ARROYO SPORTS COMPLEX BRAND NEW SHOW!
July 11, 1993 •
9880 Jackson Road, Sacramento

OAKLAND COLISEUM
July 17, 1993 •
I-880 & Hegenberger

All Shows from
10a.m. to 4p.m.
Admission: $6⁰⁰
Children under 12 FREE
FOR INFO. CALL
1-800-685-1400
BBS: 415-340-9370

$1⁰⁰ OFF
Good For All
Of The Above Shows.
Limit 1 discount coupon per person.
Regular Admission $6⁰⁰
Copies accepted.

terms of the settlement is confidential, but it is expected that the four women who filed the lawsuit last December received a total of more that $1 million. SCO was motivated to settle the lawsuit so that it could proceed with its widely anticipated initial public offering (IPO), which would have been significantly hindered by the pending suit.

Soon after announcing the settlement, SCO filed with the US Security and Exchange Commission to be able to sell stock in the company. The initial filing, which is meant to reveal all facts that a potential purchaser of the stock would find relevant to the company, revealed some interesting information about SCO. These filings, called "10K forms", are often the public's first glimpse of the inner workings of a company, since most companies are very secretive with their financial information before going public. Among the facts presented in the document, dated April 2, 1992, are:

•SCO gets almost half of its revenue from international sales. The percentage has increased in the past few years.

•SCO was not consistently profitable until 1992, and there is no clear indication that it will continue to be profitable after the stock offering.

•SCO's license with Microsoft for UNIX and XENIX has many conditions that let Microsoft out of the contract and would force SCO to find an alternative vendor. Basically, if SCO is bought or merged with a company that is a competitor of Microsoft before 1996, Microsoft can terminate its license with SCO. This would effectively prohibit SCO from seeking a major partner without Microsoft's approval unless that partner was able to provide SCO with the same access to UNIX source code and other technology.

•Even more interesting, the same contract prevents Microsoft from buying more than 20% of SCO before 1996, unless both Larry and Doug Michels are no longer officers and they have sold most of their shares of the company. That provision makes it clear that, if both Michels leave SCO and sell their stock, Microsoft could take over SCO.

The 10K form provided even more interesting information about SCO's continuing relationship with Larry Michels after he resigned as president, CEO, and board member in the wake of the sexual harassment suit. Although he was only drawing an annual salary of $137,500 plus benefits before his resignation, he is now drawing over $236,000 on a paid leave of absence as long as he does not go to work for a competitor. Further, he may name his own successor to the board of directors (as long as that person is "reasonably acceptable" to the board), and that person will be on the slate of officers for the first board after the company goes public. To date, Michels has not chosen his replacement on the board. Although SCO is only required to pay Michels the $236,000 through the end of this year, they have the option of extending it for another three years.

The IPO also revealed that SCO leases a significant portion of its office space from a real estate partnership owned by Larry and Doug Michels. Further, it appears that SCO set aside about $1.5 million for lawyer and settlement fees when it was sued last December, although the actual figure is not stated in the 10K form. Due to SEC rules, SCO cannot discuss its financial dealings until after the offering is complete, which could be in as little as a month.

MICROSOFT AND INTEL COME TO CABLE TV

Not happy to trust the home market to multimedia, Microsoft and Intel have teamed up with General Instrument, the major manufacturer of the components in most cable TV converter boxes. The result will be an Intel 386-based cable unit, complete with a Windows-like operating system from Microsoft, that will allow you to communicate more easily with your cable company, and thus get many services that are unavailable today. With the new converters, probably available next year in some areas of California, your cable company will be able to offer more two-way services through the standard coax connection.

General Instrument will combine its own compression, on-screen graphics, and communication hardware with a specialized version of Intel's 386 CPU in a box about the same size as today's cable converters. By using the 386, General Instrument was able to get the specialized version of Windows easily ported to the new system. The trick will be to offer enough power in the box to entice cable operators to design or buy new services for their subscribers (such as interactive TV listings, quiz contest software, and so on) while still making the unit easy to use. The latter may turn out the be the most difficult task for the 90% of the country that does not use Windows or a Macintosh computer.

Given the low cost of mass-producing low-end 386 CPUs, the cost of the converter box may not be much more than today's boxes, depending on the hardware the viewer uses to control the converter. However, cable companies have come under intense pressure from subscribers and the FCC to lower prices, so forcing a higher-cost controller on customers seems unlikely in the current market. The box will, however, probably be popular in areas where the cable franchise is up for grabs or where costs are already high and the cable service wants to keep people happy. ■

Big Screen, Small Price

A Very Smart Buy, The Commax Smartbook

The first competitively priced 9.5" active color screen is available now to corporations and Silicon Valley dealers. This is a limited local introduction, and at this low price supplies will not last long. The Smartbook also features many standard features not found in other notebooks of this caliber. Call our corporate sales department to find out now about the smartest buy in the Bay Area--The Commax Smartbook.

486DX/33 processor
Active color or monochrome screen
4MB RAM on board, expandable to 8MB or 20MB
Built-in 16mm PS/2 type trackball
Dimensions: 8.9" X 11.4" X 1.7"
One serial port, one parallel port
One external keyboard connector,
one external PS/2 mouse connector
One built-in 3.5" 1.44MB floppy disk drive
Full/stand by/suspend modes
Phoenix BIOS, 128K flash ROM

OPTIONS:
FAX/Modem card
4MB or 16MB memory expansion cards

Screen Size: 9.5"

Active Color 120MB: *$3,849* **120MB Mono: *$2,200***
Active Color 200MB: *$4,126* **200MB Mono: *$2,497***
(Corporate pricing)

(408) 435-5000 FAX (408)435-5005 Ask for corporate sales

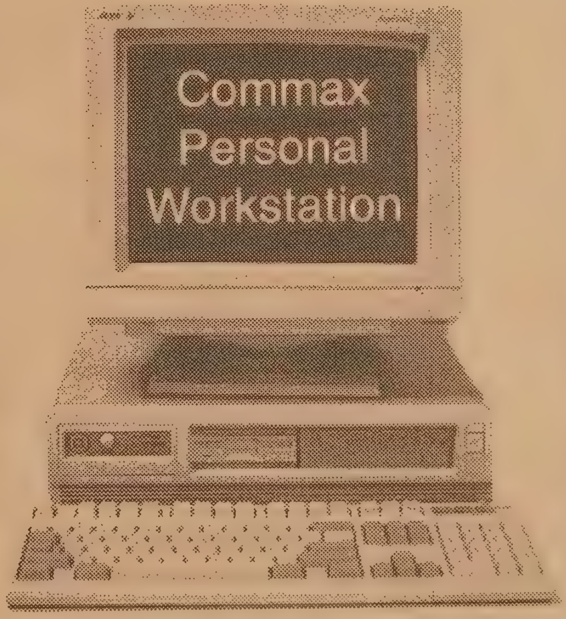
COMMAX
TECHNOLOGIES, INC.
2031 Concourse Drive
San Jose, CA 95131

Is your workstation *100%* Compatible?

Is your workstation 100% IBM compatible?
Does it run 100% of all IBM software?
Does it run 100% efficiently in an IBM environment?
Was your workstation made with IBM parts?

What did you pay for your workstation?

The **Commax Personal Workstation** made with IBM parts.
It's everything you'd expect--but the price.



(Monitor sold separately)

IBM 486SLC2 25/50 MHz
16K internal cache
2 serial ports, 1 parallel port
PS2 keyboard
Mouse connector
SVGA on the motherboard
4MB of memory
1.44 floppy drive
Paradise SVGA Windows Accelerator (1280X1024)
FCC UL approved
Landmark 114.51 (v2.0), MIPS 19.5 (v1.17)
Norton SI 72.5 (v6.0)

With 170MB HDD: *$995.00* With 254MB HDD: *$1195.00*
(Corporate Pricing)

(408) 435-5000 FAX (408) 435-5005 Ask for corporate sales

COMMAX
TECHNOLOGIES, INC.
2031 Concourse Drive
San Jose, CA 95131

Ask us about our dealer pricing!

COMPUTER STOCKS TUMBLE WHILE DOW HITS NEW RECORD HIGH

While the dollar fell to a post-war low against the yen and the yield on 30-year bonds fell to a 16-year low, computer stocks retreated during the month of April.

When trading came to a halt, here is how our basket of stocks performed: the Microtimes Stock Index surrendered 122.26 points, or 2.91%, en route to a close of 4074.63. The Dow Jones Industrial Average, in comparison, hit a new record high at 3478.61 before profit-taking trimmed the indicator 14.32 points, or .42%, to its closing mark of 3425.12. The old high for the Dow Industrials was 3478.34 set on March 10 of this year.

Adobe topped the leaderboard last month as that stock soared 34.7%, or $14.75 a share, to a new 52-week high of $57.25. The company said customers reacted very positively to its new Acrobat line of imaging software. In addition, Merrill Lynch began its coverage of Adobe with an "above average" rating, citing the potential success of the company's Acrobat software.

In stark contrast, Intel crashed $15.75 a share and was the largest dollar-loser of the lot. The semiconductor maker's stock slumped amid concerns about increased competition from Motorola, which may prompt a price war. Intel concluded matters at $95.75.

Apple fell under the weight of sell orders last month, as it slipped $1.00 a share to $50.75. Analysts were divided last month as to the company's future earnings prospects. Furman Selz and Merrill Lynch turned negative on the stock last month while Salomon Brothers raised its rating on the stock to "buy" from "hold." Apple's second-quarter net income fell 18% to $111 million while sales rose 15% to $1.97 billion.

IBM toppled $3 to $48.88. Last month, the company reported a first-quarter loss of 50 cents a share, down from a profit of $1.12 a share at this time last year. The loss, however, was smaller than Wall Street had expected.

Sun Microsystems downticked 11.25% to $27.63 a share. The company disappointed investors last month when it reported lower-than-expected third-quarter earnings of $51 million vs. $61 million in the year-ago period. The stock subsequently was removed from Goldman Sachs' "recommended list."

EXCH	COMPANY	TICKER SYMBOL	CLOSING PRICE 04/01/93	CLOSING PRICE 04/29/93	NET CHANGE IN MONTH	PERCENT CHANGE IN MONTH	P/E RATIO	ANNUAL DIVIDEND RATE	ANNUAL DIVIDEND YIELD	ANNUAL HIGH	ANNUAL LOW
	SOFTWARE										
OTC	Adobe (H)	ADBE	42.50	57.25	14.75	34.71	29	0.40	0.70	57.25	25.25
OTC	Aldus	ALDC	18.75	15.00	-3.75	-20.00	–	0.00	0.00	22.25	10.25
OTC	Autodesk	ACAD	43.63	40.25	-3.38	-7.74	23	0.48	1.19	56.50	29.75
OTC	Borland	BORL	21.25	22.25	1.00	4.71	–	0.00	0.00	54.50	17.50
OTC	Informix	IFMX	33.50	37.50	4.00	11.94	22	0.00	0.00	42.00	12.13
OTC	Lotus	LOTS	25.63	25.50	-0.13	-0.49	15	0.00	0.00	33.25	14.75
OTC	Microsoft	MSFT	93.00	85.50	-7.50	-8.06	29	0.00	0.00	95.00	65.50
OTC	Novell	NOVL	32.00	29.25	-2.75	-8.59	33	0.00	0.00	35.25	22.50
OTC	Oracle	ORCL	36.88	34.88	-2.00	-5.42	50	0.00	0.00	37.50	14.00
OTC	Software Publishing	SPCO	13.75	7.88	-5.88	-42.73	–	0.00	0.00	19.50	6.75
OTC	Symantec	SYMC	13.38	12.75	-0.63	-4.67	–	0.00	0.00	44.25	5.88
	HARDWARE										
OTC	Apple	AAPL	51.75	50.75	-1.00	-1.93	12	0.48	0.95	65.25	41.50
OTC	AST Research	ASTA	13.75	13.75	0.00	0.00	8	0.00	0.00	24.25	11.25
NYS	Commodore (L)	CBU	5.00	4.38	-0.63	-12.50	–	0.00	0.00	12.88	4.25
NYS	Compaq	CPQ	50.00	47.38	-2.63	-5.25	14	0.00	0.00	58.50	23.13
NYS	Digital Equipment	DEC	43.75	43.38	-0.38	-0.86	–	0.00	0.00	49.25	30.38
OTC	Dell	DELL	35.00	28.63	-6.38	-18.21	11	0.00	0.00	49.88	15.00
NYS	Hewlett-Packard	HWP	75.63	73.75	-1.88	-2.48	22	0.80	1.08	82.88	50.25
NYS	IBM	IBM	51.88	48.88	-3.00	-5.78	–	2.16	4.42	100.38	45.88
NYS	Silicon Graphics	SGI	27.63	32.50	4.88	17.65	–	0.00	0.00	33.00	16.13
OTC	Sun Microsystems	SUNW	30.00	26.63	-3.38	-11.25	22	0.00	0.00	41.00	22.50
NYS	Xerox	XRX	83.13	75.38	-7.75	-9.32	–	3.00	3.98	88.88	66.75
NYS	Tandy	TAN	30.13	29.38	-0.75	-2.49	26	0.60	2.04	32.13	22.25
	CPU'S										
NYS	Advanced Micro Devices (H)	AMD	22.63	29.13	6.50	28.73	13	0.00	0.00	32.88	7.38
OTC	Intel	INTC	111.50	95.75	-15.75	-14.13	15	0.40	0.42	121.25	46.50
NYS	LSI Logic	LSI	12.25	10.63	-1.63	-13.27	–	0.00	0.00	14.13	4.88
NYS	Motorola (H)	MOT	65.13	72.25	7.13	10.94	29	0.44	0.61	74.88	37.13
	COMMUNICATIONS										
NYS	AT&T (H)	T	57.00	56.13	-0.88	-1.54	19	1.32	2.35	60.38	40.63
NYS	BellSouth Corp.	BLS	56.00	53.13	-2.88	-5.13	16	2.76	5.20	57.50	46.75
OTC	MCI (H)	MCIC	44.88	46.88	2.00	4.46	20	0.10	0.21	49.25	29.88
NYS	Northern Telecom	NT	36.75	36.25	-0.50	-1.36	17	0.36	0.99	46.00	30.50
NYS	Pacific Telesis	PAC	47.75	46.25	-1.50	-3.14	–	2.16	4.67	49.38	39.25

KEY: NYS = NEW YORK ASE = AMERICAN OTC = OVER THE COUNTER
(H) = NEW HIGH REACHED IN PERIOD (L) = NEW LOW REACHED IN PERIOD

MARKET DIARY:

ADVANCES	7
DECLINES	24
UNCHANGED	1
NEW HIGHS	5
NEW LOWS	1

MOST ACTIVE ISSUES:

LARGEST DOLLAR GAINER	Adobe	$	14.75
LARGEST DOLLAR LOSER	Intel	$	-15.75
LARGEST PERCENTAGE GAINER	Adobe		34.71 %
LARGEST PERCENTAGE LOSER	Software Publishing		-42.73 %

	CLOSE 04/01/93	CLOSE 04/29/93	NET CHANGE IN MONTH	PERCENT CHANGE IN MONTH
MICROTIMES STOCK INDEX	4196.89	4074.63	-122.26	-2.91
DOW JONES INDUSTRIAL AVERAGE	3439.44	3425.12	-14.32	-0.42
STANDARD & POOR'S 500 STOCK INDE	450.30	438.89	-11.41	-2.53
N.Y.S.E. COMPOSITE	248.74	242.48	-6.26	-2.52
NASDAQ COMPOSITE	686.64	658.45	-28.19	-4.11

CLOSING QUOTES FOR GRAPH:		
DATE	MICRO TIMES	DOW JONES
09/25/92	3313.28	3250.32
10/23/92	3536.03	3207.64
12/10/92	3825.83	3312.19
01/11/93	4020.09	3262.75
02/05/93	4083.40	3442.14
03/04/93	4127.80	3398.91
04/01/93	4196.89	3439.44
04/29/93	4074.63	3425.12

Copyright Nordby International, Inc. Louisville, CO

This information is based on sources believed to be reliable, and while extensive efforts are made to assure its accuracy, no guarantees can be made. Nordby International and Microtimes assume no liability for any inaccuracies. For phone numbers, addresses or any additional financial information on any of the above companies call Nordby International at (303) 666-5903.

COME VISIT OUR SHOWROOM ON THE PENINSULA AND IN THE SOUTH BAY

THE LEADER IN CUSTOMER SERVICE

WE'LL MAKE SURE YOU LEAVE FEELING SATISFIED BECAUSE YOUR SATISFACTION IS OUR BIGGEST GUARANTEE.

SALES • SUPPORT • SERVICE

1 YEAR PARTS LIFETIME ON LABOR

WARRANTY

WE OFFER COMPLETE INSTALLATION, UPGRADES & A LOT MORE!

MOTHERBOARDS

386SX-33MHz w/CPU	$98
386DX-40MHz 128K w/CPU	$160
486SX-25MHz w/CPU	$200
486DX-33MHz 128K w/Intel CPU	$428
486DX-50MHz 128K w/Intel CPU	$578
486DX2-66MHz 128K w/Intel CPU	$678
VESA LB 486DX-33MHz 256K w/Intel CPU	$458
VESA LB 486DX-50MHz 256K w/Intel CPU	$608
VESA LB 486DX2-66MHz 256K w/Intel CPU	$708

MODEMS

Zoltrix 96 Send only/24 Fax/Data Int	$35
Zoltrix 96/24 Fax/Data Int	$58
Zoltrix 14.4/14.4 Fax/Data Int	$185
Zoltrix 14.4/14.4 Fax/Data Ext	$218
US Robotics 14.4/14.4 Fax/Data Int	$198
US Robotics 14.4/14.4 Fax/Data Ext	$228

PRINTERS

Panasonic KX 4410 Laser	$618
Panasonic KX 4430 Laser	$768
Panasonic KX 2023 24 Pin	$210

TAPE BACKUP

Colorado DJ20 250MB	$210
Colorado DJ10 120MB	$160

SPECIALS OF THE MONTH

Maxtor 245MB IDE	$275
WD 340MB IDE	$360
Adaptec 1542 CK SCSI-2	$245
Fujitsu 1.2GB SCSI-2 M2694SA	$1300
Fujitsu 2.4GB SCSI-2 M2654SA	$2100

CASH PRICES ONLY

CD ROM TITLES

Microsoft Windows 3.1 for WIN/MPC	$52
Microsoft Bookshelf for WIN	$44
Compton's Multimedia Encyclopdia for WIN/MPC	$58
Beauty & The Beast MPC	$26
USA Wars: Desert Storm for WIN/MPC	$30
Toolworks Multimedia Encyclopedia MPC	$56
Animals V1.0 MPC	$30
Mavis Beacon Teachers Typing V2.0 MPC	$30

MULTIMEDIA

Sound Blaster ASP 16 w/CD	$230
Sony 31A CD-ROM	$230
16 Bit Thunder Audio Spectrum 16	$145
Bundled w/Mitsumi CRCM-LU005S MPC	$330
Toshiba XM-3401B 200ms	$464
Toshiba XM-3401E 200ms	$564
Texel DM-3024 265ms	$390
Texel DM-5024 265ms	$465
NEC 84-1 280ms	$542
NEC 74-1 280ms	$618
Discovery-16 390ms Int/Ext.	$410/474
Discovery-8 390ms Int/Ext.	$468/534
Proaudio Spectrum 16	$178

VESA 486DX Local Bus Complete System

486DX-33MHz	$1448
486DX-50MHz	$1638
486DX2-66MHz	$1728

- Intel CPU w/8K Internal Cache, Math-Coprocessor
- AMI BIOS/Clock, Calendar
- 256K of Ultra-Fast Cache
- **4MB (70ns) Memory**
- 1.2MB & 1.44MB Floppy Drive
- **245MB IDE Hard Drive**
- 1:1 2H/2F IDE Controller
- 2 Serial, 1 Parallel, 1 Game Port
- **Genoa 32 Bit Local Bus SVGA Card w/1MB**
- **14" Super Non-Interlaced VGA Monitor (1024x768) .28 Dot**
- 101 Enhanced Keyboard
- Med Tower w/PS

486DX ISA Complete System

486DX-33MHz	$1268
486DX-50MHz	$1398
486DX2-66MHz	$1498

- Intel CPU w/8K Internal Cache, Math-Coprocessor
- AMI BIOS/Clock, Calendar
- 128K of Ultra-Fast Cache
- **4MB (70ns) Memory**
- 1.2MB & 1.44MB Floppy Drive
- **120MB IDE Hard Drive**
- 1:1 2H/2F IDE Controller
- 2 Serial, 1 Parallel, 1 Game Port
- **16 Bit SVGA Card w/1M**
- **14" Super VGA Monitor (1024x768) .28 Dot**
- 101 Enhanced Keyboard
- Mini Tower w/PS

Multimedia 486SX-25 Complete System

$1288

- **Intel 486SX-25 MHz CPU**
- Landmark Speed = **112 MHz**
- 8K of Internal Cache
- **4MB (70ns) Memory**
- 1.2MB & 1.44MB Floppy Drive
- **120MB IDE Hard Drive**
- 1:1 2H/2F IDE Controller
- Clock/Calendar
- 2 Serial, 1 Parallel, 1 Game Port
- **16 Bit SVGA Card (1024x768) w/512K**
- **14" Super VGA Monitor (1024x768) .39 Dot**
- 101 Enhanced Keyboard
- Mini Tower w/PS
- 16 Bit Thunder Audio Spectrum 16
- Mitsumi CRMC-LU005S MPC

386DX-40MHz Complete System

$928

- **AMD 80386-40MHz CPU**
- Landmark Speed = **65MHz**
- AMI BIOS
- 64K Ultra Fast External Cache (Expandable to 256 Cache)
- **4MB (70ns) Memory**
- 1.2MB & 1.44MB Floppy Drive
- **120MB IDE Hard Drive**
- 1:1 2H/2F IDE Controller
- Clock/Calendar
- 2 Serial, 1 Parallel, 1 Game Port
- **16 Bit SVGA Card (1024x768) w/512K**
- **14" Super VGA Monitor (1024x768) .39 Dot**
- 101 Enhanced Keyboard
- Mini Tower w/PS

SF
1
WESTBOROUGH
W. ORANGE
SF
133 SOUTHWOOD CENTER
101
N
PONDEROSA
380
SJ
SJ
82

BETA NINETIES
COMPUTER, INC.
133 Southwood Center
South San Francisco, CA 94080
415/875-6682
Fax 415/875-6683

Monday-Friday 9:30-6:00
Saturday 10-5

MasterCard

VISA

BETA NINETIES
COMPUTER, INC.
1655 South Main Street
Milpitas, CA 95035
408/956-8800
Fax 408/956-1236
(Main St. & Montague Expressway)

Dial-Up Access to Legislation: An Update

Or, My Trip To Sacramento

BY JIM WARREN

These columns concern what ain't, but could be—as soon as we do it.

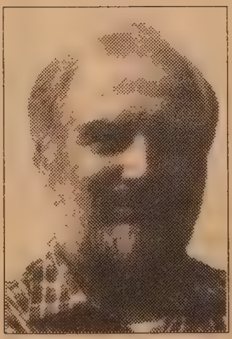
This one concerns dial-up, computer-based access to legislation in process, government codes, and a state constitution from home, school, office—or even from a courtroom via cellular modems or digital-radio connections.

[Query: Recent columns on access to computerized public records generated more snailmail and email than any other issue in the half-decade this column's been running. However, one e-message lamented the lack of proposals for gadgets-to-be, the former fun focus of this column. I'd love to babble about techno-toys, but computer-related government policies—in-process and public access to that process seem too important to disregard.

REALIZABLE FANTASIES

Encourage other trade and lay publications to give it regular, in-depth coverage. Then I'd contentedly talk technical again. What do you think? My address is in the sidebar. -jim]

California Assembly Bill 1624 (Bowen) would mandate that already-computerized public legislative data be publicly accessible by modem. By the time this appears, it may have died in a committee, or be moving forward due to public support—which has kept it alive, so far. This column illustrates what's involved in any effort to obtain online access to computerized public records.



Copyright © 1993 by Jim Warren, 345 Swett Rd., Woodside CA 94062; email/jwarren@well.sf.ca.us. Permission herewith granted to copy-in-full for any nonprofit use.

CITIZEN ACCESS: A TRUE STORY

Each bill is heard by several committees. If an Assembly committee votes against it, then the proposal cannot again be reintroduced in the Assembly until 1995, the next two-year session.

The first hearing was by the Assembly Rules Committee, John Burton, Chair (D-San Francisco). Four people came forward to speak: The bill's sponsor; Ted Laliotis, a Los Altos City Council member and former Mayor (and also Director of Emerging Technologies for Hewlett-Packard, but not representing HP); Ruth Holton from Common Cause; and me.

But only Bowen and I were permitted to speak. As soon as Ms. Bowen began explaining her bill—and almost every time she spoke thereafter—a man sitting near Chairman Burton immediately began talking to him in much more than a whisper. I found later that he was the Assembly's Chief Administrative Officer, Bob Connelly—an Assembly staff member, not an elected official.

At one point, Bowen displayed a file-folder of support letters and faxes about an inch thick. No one seemed to notice or care.

I had the impression that Bowen was not finished, but the Chair asked, "How's this going to be done?" (The bill had no implementation details.) Although at least Laliotis and I had prepared some brief comments, the question ended planned presentations and the hearing became a random discussion. Laliotis had planned to mention some Silicon Valley civic-networking plans, and outline local governments' need for this online access, currently unavailable without great expense.

A technical question came up, and I used the opportunity to propose that public access could be implemented by making legislative data available via the Internet, costing the state no more than a daily phone call. I outlined its cooperative character, free exchange of information, and the fact that many other major public and proprietary networks are connected to the Internet and could pass the files along—to FidoNet, BITNET, GEnie, AOL, Compu$erve, etc.

In particular, the Legislative Data Center (LDC) could transmit files nightly to one or several cooperating Internet host-computers that would agree to receive the files, store them securely, and allow other hosts to copy them, all without charging the state or the other hosts.

Costs: The LDC Director agreed in early April that a server-class computer could do this, e.g., an about-$1,700, 486-based machine could handle a dozen simultaneous ftp transfers over a 56Kb link. They might also need a router (about $1,700) and a DSU/CSU (about $600). I said I'd find a donor machine if necessary. The regional hub for the high-speed national network-backbone is in downtown Sacramento, so a 56Kb line would cost $0-$120/month—the only cost to the state, assuming donated gear.

Data volume: The last two-year legislative session generated 676,513,792 bytes of data, approximately. The twenty-nine state codes and the constitution—which Bowen requested be amended into the bill—currently take another 124,097,288. Thus, a $1,500 gigabyte disk could store two years of legislative data, the codes and constitution—and have 500MB to spare.

Several committee members showed clear doubts—perhaps disbelief—that people (a) would accept and store files without charging the state, and (b) would actually share them with others without charge. They questioned those ideas at length.

PROGRAMMING NEEDED; FREEWARE CONCEPT QUESTIONED

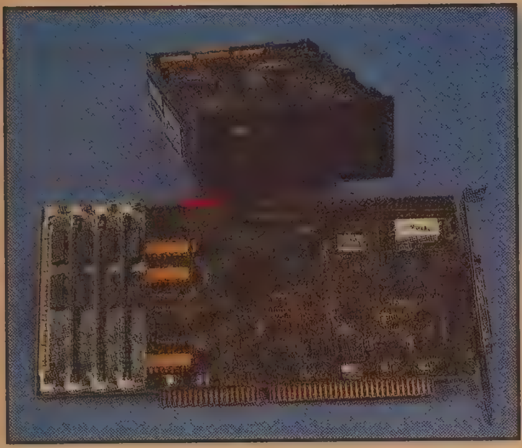
Strike-thru, underscore and italicized text has semantic meaning in the legislative process. Furthermore, amendments are specified in terms of isolated text-changes to numbered lines—and the LDC doesn't provide the numbers; the Office of State Printing's typesetting program adds them.

The legislative data-files contain text plus markup codes that indicate fonts and formatting. The markup is in CGML—California Generalized Markup Language, not the industry's SGML (the Standard

continued on page 89

COMPLETE DISK KITS WITH CACHE CONTROLLERS

All kits come complete with controllers and cables. Kits are pre-formatted, ready to plug and play!



FACTORY REFURBISHED
MAXTOR 200 MB 15 ms SCSI KIT
3.5" drive, with 1 year warranty

CSC PRICE!! $395! (qty 1)

The LXT200S SCSI drive kit with CSC's FastCache controller and 1 MB cache is an excellent choice for your first computer, or a home work-station being used for graphics, desktop publishing, or spreadsheet/ bookkeeping projects.

Our customers named this drive "The Tank" for its reputation for long term reliability. Best buy in a 600MB class drive!

LIST PRICE	
DRIVE	$995
CONTROLLER	$395
1MB CACHE	$ 20
TOTAL	$1410

PACKAGE PRICE INCLUDES
CSC FASTCACHE 64 SCSI CARD
1MB CACHE RAM INSTALLED
CABLES AND DOCUMENTATION

FACTORY REFURBISHED
MAXTOR
640MB
16ms SCSI

CSC PRICE
$749!!
DEALER PRICE
$695 (QTY 2+)

CSC REFURBISHED
MAXTOR
1300MB
13ms ESDI

MAXTOR PANTHER! The experts' choice for Windows NT, UNIX and Novell! Over 22Mbit/sec data transfer rate!

LIST PRICE	
DRIVE	$1995
CONTROLLER	$ 295
32K CACHE	$ 10
TOTAL	$2300

CSC PRICE $1095!!
DEALER PRICE $1050 (QTY 2+)

PACKAGE PRICE INCLUDES
DTC 6282-24 ESDI CARD
32K CACHE RAM INSTALLED
CABLES AND DOCUMENTATION

You asked for it - we built it!
CSC is now manufacturing the ultimate SCSI enclosure. Up to 8 SCSI Hard, CD-ROM, Optical and Tape drives can be configured to your specifications.

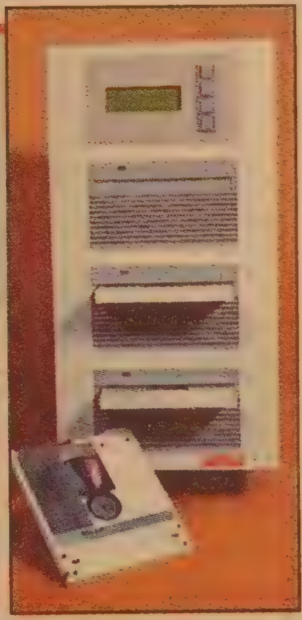
Whether you need a network storage subsystem, a workstation drive unit, or a full blown disk array - CSC has it! We'll custom build it with the drives of your choice!

Our new enclosure features a powerful 300-watt power supply and can be expanded with up to 900 watts of fault tolerant redundant power. Call us today for information on this exciting new product!

BRAND NEW DISK ARRAY
ENCLOSURE PRICES START AT $495!

- 300 to 900 Watts of Power!
- Dual Filtered Cooling Fans!
- Custom Built To Your Needs!
- Heavy Duty Construction!

MADE IN USA!



FACTORY REFURBISHED
TAHITI ERASABLE OPTICAL DRIVES!

Factory-refurbished Maxtor Tahiti-1 Erasable Optical Drives in CSC Megatower external enclosure (1GB, 35ms) $1295

Brand-new, Low-cost 1024 byte cartridges (format over 1GB).. $119

Note: Free software drivers are now available to all registered CSC FastCache™ owners for "hot cartridge" operation on 1024-byte disks!

Factory-refurbished Maxtor RXT-800S 800MB WORM Drives...... .... $269

800MB WORM Disks...................... $99

Windows NT, UNIX, Macintosh and Tahiti are the registered trademarks of their respective holders. FastCache is a trademark of Corporate Systems Center.

BRAND NEW CD-ROM DRIVES!

Brand New NEC, Multimedia External Portable CD-ROM Drives! $249
Brand New, TEXEL DM3024 CD-ROM Drive with hardware, caddy $419

CORPORATE SYSTEMS CENTER
730 North Pastoria Ave. • Sunnyvale, CA 94086
(408) 737-7312
FAX (408) 737-1017

Call CSC today! All items are backed by CSC's fast-turnaround warranties. Extended warranties available!

Quality Leader in the East Bay

5 YEAR LABOR 1 YEAR PARTS WARRANTY

MICRONICS
COMPUTERS INC.

486-33 VESA LOCAL BUS w/FAHRENHEIT 1280 VESA BUS 240MB Hard Disk Super VGA System

- One Additional Available VESA LV Slot
- Built-In VESA Local Bus 2FD/2HD IDE Controller Card
- 8K Internal, 256K External Cache
- 4MB RAM expandable to 64MB on board
- 240MB IDE Hard Drive Fast
- 14" Super VGA color Monitor (Non-Interlaced 1024x768) .28 dp
- Fahrenheit VESA Local Bus (Windows) Accelerator SVGA Card w/1MB VRAM
- 1.2MB & 1.44MB Floppy Drive
- 101-Key Keyboard
- Full Tower Case w/300W power supply
- 3-Button High Resolution Mouse

intel inside

$1,959

486DX2-50MHz System	$2,069
486-DX2 66MHz System	$2,195

MICRONICS

486DX/33 SYSTEM SUPER SALE

- 4MB RAM Expandable to 64MB on Board
- 64K Cache (Expandable to 256K)
- 200MB 15ms IDE Hard Drive
- 14" Super VGA Color Monitor (Non-interlaced 1024x768) .28 dp
- 1MB SVGA (1024x768) Display Card
- 16-Bit IDE Controller
- 2S, 1P, 1G Ports
- 1.2MB and 1.44MB Floppy Drives
- 8 Expansion Slots
- 101 Enhanced Keyboard
- Built-in Math Coprocessor
- Clock/Calendar w/Battery Backup
- Mid-Tower Case

intel inside

$1,385
Limited Quantity Available

MICRONICS

MICRONICS MOTHERBOARD

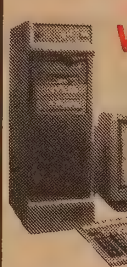
486DX-33 w64K Cache (ISA) No CPU	$139
486DX-33 Local Bus 256K Cache & CPU	745
486DX2-50/66 Local Bus 256K Cache & CPU	845/995

ORCHID MOTHERBOARD

Superboard 486 VLB Local Bus 256K Cache for DX-33, DX2-50, DX2-66 No CPU	$229

ECI MOTHERBOARDS

486DX-50 256K Cache w/CPU	$547
486DX-33 256K Cache w/CPU	409
486DX-33 128K Cache No CPU	119
386DX-40 64K Cache w/CPU	169
386SX-33 w/CPU	109
486DX2-66 256K Cache w/CPU	609



Limited Quantity Special! VESA LOCAL BUS 486DX/33MHz Orchid Superboard VLB 240MB Super VGA System

Fahrenheit TM VVLB Local Bus Display Card Super speed Windows!

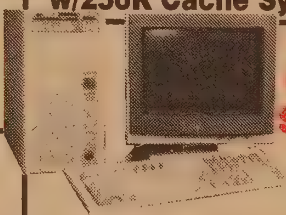
- 8K Internal, 256K External cache
- 4MB RAM expandable to 32MB on board
- 240MB 15ms IDE Hard Drive
- 14" Super VGA color monitor (Non-interlaced 1024x768) .28dp
- 1MB Local Bus Fahrenheit™ VLB Display Card
- 2HD/FD Local Bus VESA IDE Controller Card
- 2S,1P,1G ports
- 1.2 and 1.44MB Floppy Drives
- 101-key Keyboard
- Built-in math coprocessor
- Weitek coprocessor socket
- Clock/Calendar w/battery backup
- Vertical case with power supply
- 3-Button High-Resolution Mouse

DOS 6.0 & WINDOWS 3.1 INCLUDED

intel inside

$1,749 ORCHID

486DX2-66MHz w/256K Cache System	$1,969



ECI 386DX/40MHz 64K Cache 120MB Super VGA System

$949

NEW

- 64K cache on board
- 4MB RAM expandable to 32MB on board
- 120MB IDE HARD DRIVE
- 14" Super VGA color monitor (1024x768) .28dp
- 1MB 16bit VGA (1024x768) card
- 2HD/FD controller
- 1.2MB and 1.44MB floppy drive
- 2 Serial, 1 Parallel, 1 Game Ports
- 101 Enhanced keyboard
- Weitek coprocessor socket
- Clock/calendar w/battery backup
- Includes shadow ram for fast bios access
- Mini Vertical case with 200W power supply

386DX-40 Motherboard Upgradable to 486DX by Changing CPU Chip

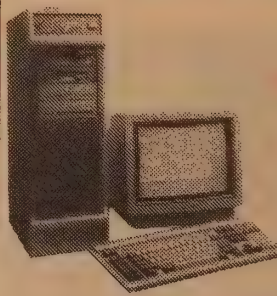
CREATIVE
CREATIVE LABS, INC.

SOUND BLASTER MULTIMEDIA UPGRADE KIT

- Creative Sounds: CD Audio, MIDI Music Files, Digitized Sound Effects, Professional Sounds for SoundBlaster Pro
- Microsoft Works for Windows
- Microsoft Bookshelf Reference Library
- Sherlock Holmes, Consulting Detective
- Macromind Action
- Authorware Star
- Mathematica Tempra

7 Titles on 5 CDs

Internal $469



ECI 486DX/33MHz

ISA **$1,395**

ECI 486DX/50MHz

ISA **$1,549**

486DX2/66MHz

$1,599

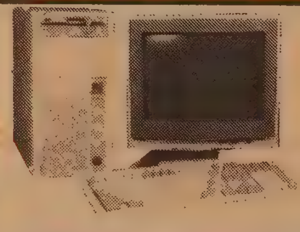
256K Cache 240MB Super VGA System

- 8K Internal, 256K external cache
- 4MB RAM expandable to 128MB on board
- 240MB IDE HARD DRIVE
- 14" Super VGA color monitor (Non-Interlaced 1024x768) .28 dp
- 1MB 16bit VGA (1024x768) card
- 2HD/FD controller w/2S, 1P, 1G ports
- 1.2MB and 1.44MB floppy drives
- 101 Enhanced keyboard
- Built-in math coprocessor
- Weitek coprocessor socket
- Clock/calendar w/battery backup
- Vertical case with power supply
- 3 Button High-Resolution Mouse

intel inside

OPTIONS:

-340MB 12ms Hard Disk	ADD $95
-17" Viewsonic 7 Monitor 1280x1024 .28dp	ADD $619
Upgrade VESA Local Bus Motherboard	ADD $89



ECI 386SX-33 85MB Super VGA System

$779

- 2MB RAM expandable to 16MB
- 85MB HARD DRIVE
- 14" Super VGA Color Monitor (1024x768) .39dp
- 512K 16bit VGA (1024x768) Card
- Math Coprocessor Socket
- 1.2MB and 1.44MB floppy drive
- 2HD/2FD Controller w/2S, 1P, 1G ports
- 101 Enhanced Keyboard
- Mini Vertical case with 200W power supply

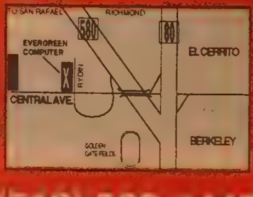
COLORADO
MEMORY SYSTEMS INC.

DJ-10 (120MB) QIC-49	$138
DJ-20 (250MB) QIC-80	199
AB-11 External tape port	45
FC-10 Controller	95
KE-10 Ext Kit	99
TC-15 Controller w/data compression	195

Trakker™
Parallel Printer Port External Tape Backup System

120MB External	$359
250MB External	$405

COMPUTER INTERNATIONAL, INC.
2700 Rydin Road #C Richmond, CA 94804



EVERGREEN

(510) 526-8667 FAX (510) 526-1447

Serving You for Over 8 Years!

Hard Disks • Notebooks • Monitors

MAXTOR

130MB 15ms IDE 7120A	$185
213MB 15ms IDE 7213A	265
340MB 13ms IDE LVT-340	369
535MB 13ms SCSI/IDE LXT-535A	849/889
1.2GB SCSI	1050
1.7GB SCSI	1239

FUJITSU

525MB IDE/SCSI 11ms	$749
1.2GB SCSI 14ms	1115

CONNER

170MB 17ms IDE CP30174E	$225
120MB 19ms IDE 30104	195
213MB 12ms IDE CP30204F	289

WESTERN DIGITAL

250MB 14ms IDE WD2250	$289
120MB 19ms IDE WD2120	215
213MB 15ms IDE WD2200	280
340MB 12ms IDE WD2340	395

QUANTUM

127MB 32K Cache Fast IDE	$195
240MB 256K Cache Fast IDE	290
425MB 11ms IDE	789

INTERFACE CARDS

AT I/O card 2S/1P/G	$15
Mono graphic/printer	16
XT high density floppy cont	35
Serial/printer/game/clock card	14/14/14/14
MFM 1:1 HD/FD cont	49
IDE dual HD/FD cont	14
IDE w/IO 2S, 1P, 1G, Card	19
VGA Trident 1024x768 w/1MB	59
VGA T9000 1024x768 512K	49
STB 4-COM, 4 serial, 16 bit w/16554 support COM 1-8, IRQ 2,3,4,5,10,11,12,15	109

VIDEO CARDS

Orchid P9000/VLB/3MB	$349
Orchid Fahrenheit VLB	189
Orchid Fahrenheit 1280 Plus	165
Diamond Speedstar Pro VLB	139
Diamond Stealth Pro 1MB	269
Diamond Stealth 24VLB	189

CONTROLLERS

ADAPTEC

1542C SCSI w. Kit (10MB/s)	$259
1742A SCSI EISA /w.Kit (2F & 2H)	375/435

ULTRASTOR

ULT 15C IDE Cache	$189
ULT 24F SCSI EISA Cache	395
ULT34F SCSI-2 VLB 32K	295

DIGITIZERS

Summasketch III NEW
12" x 12" 4 Button Cursor **$299**

ACECAD 5"x5"
GRAPHICS TABLET

5"x5" Active Area - Includes 2-button Stylus-Pen and Utilities Diskette with Custom Mouse, Windows, ADI drivers, and Windows control panel program. **$119**

Unbelievable Price - High Quality

W/DOS 6.0 & WINDOWS 3.1

LEO PhD Notebook

- 4MB RAM expandable to16MB
- 120MB Hard Drive
- 1.44MB 3.5" Floppy Drive
- 2 Serial ports, 1 Parallel port
- Backlit black-and-white LCD, 640x480 VGA resolution
- 6.38 lbs including battery pack

Includes AC adapter/recharger, power cord, user guide, utility disk, carry bag

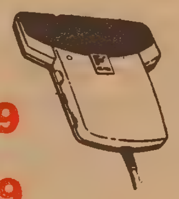
intel inside

LEO486SX-25 $1779
LEO486DX-33 $1939

LOGITECH

ScanMan Model 256 & Ansel ™ Hand-Held Scanner

ScanMan 32	$139
ScanMan 256	$259
ScanMan 256 w/Catchword PRO OCR	$319
ScanMan Hand-Held Color Scanner	$559

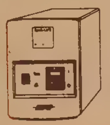


• Serial Mouseman 400dpi	$69
• Bus Mouseman 400dpi	69
• Cordless Mouseman 400dpi	109
• Serial TRACKMAN	89
• Bus TRACKMAN 320dpi	79
• First Mouse	39
•Trackman Portable	99

American Power Conversion

Backup Power Supplies at Great Prices!

BK250B 200-200VA; back-up power for 386SX, 286SX, 286, XT's and AT's	$109
BK450 400-450VA; back-up power for Tower 386, 486 systems, servers; with network interface	$209
AP900 Smart-Ups 900 900 VA 286, 386, 486 Servers Multiple systems, Longer runtime	$599



Canon

Perfect for any Notebook or Laptop!

Portable Bubble Jet BJ-10ex

- Prints up to 83cps
- Text & graphics up to 360 dpi
- Uses plain paper & transparencies
- 1-year warranty

$259

BJ-200 Laser Quality... At an InkJet Price

- Prints up to 4ppm
- 7 resident fonts
- 100-page sheet feeder
- Holds up to 10 envelopes

$359

CITIZEN PRINTERS

GSX-230

- 24-pin printer
- Up to 270cps, 90cps LQ
- 8 Built-in fonts

$239

GSX-240

- 24-pin printer
- Up to 300cps, 99cps LQ
- 13 Built-in fonts, including 2 scalable

$289

GSX-145 • 132 column printer **$359**

ViewSonic™

5+	14"	1024X768 .25 NI	$515
6e	14"	1024x768 .28 NI	329
7	17"	1280X1024 .28 NI	915

NEC

15"	3FGE	NI	1024x768	28mm	$699
15"	4FGE	NI	1024x768	28mm	699
17"	5FGE	NI	1024x768	28mm	1095
21"	6FG	NI	1280x1024	28mm	2039

HEWLETT PACKARD

LaserJet 4/4M 8ppm, 600x600 dpi, 2/6MB w/Toner	$1349/1839
LaserJet 4SI w/Toner 7ppm, Network Compatible, 1MB	2999
LaserJet 3P w/Toner 4ppm, 1MB	CALL
LaserJet 4L Plus w/Toner 4ppm, 300 DPI, 1MB	739
DeskJet 550C 300dpi, Color Ink Jet	689
DeskJet 500	389
DeskJet Portable	379

HP TONER CARTRIDGES

HP 92275A HP IIP, IIP+, IIIP	79
HP 92295A HP IID, II, III, IVD	89
HP 92291A HP ILsi	119
HP 92298A HP4	99

Laser Printer MEMORY!!

	1MB	2MB	3MB	4MB
HPII/IID	N/A	$125	$160	$180
HPIIP/III/IIID/IIIP	N/A	125	160	180
Panasonic KX-P4420	N/A	139	175	189
IBM 4019	109	149	309	N/A
Epson EPL-6000	140	155	190	N/A
Epson EPL-7000	N/A	90	140	N/A
Okidata 400/800	100	150	N/A	N/A
Brother HL-4	130	180	230	280

Super VGA Monitors

STANDARD TECHNOLOGIES

•MSTAN-428-VESA 14" Monitors 1024x768 Non-Interlaced	$339
•MSTAN-428D-UVGA 14" Monitors 1024x768 Non-Interlaced	$289

NEC

NEW

LC-95F Printer
$1,349

- Adobe PostScript &HP II Emulation
- 6 PPM Laser Printer
- 300 dpi
- Apple Talk, Parallel and Serial Interface
- 2MB of Memory
- 35 Scalable Typefaces, 14HP Bitmapped Fonts
- Universal Paper Tray

Panasonic
Office Automation

KX-P2123
Quiet 24-pin
Color Capable
43.5 dBA!
$239

KX-P2180
Quiet 9-pin
Color Capable
45 dBA
$159

KX-P2624	24-pin, 300cps, Free ATM	$379
KX-P2124	NEW	319
	Color Option	$39

HOURS: MON-FRI 9-6 SAT 10-5
Prices subject to change W/O notice
Not responsible for typographical errors
PRICES BASED ON CASH PRICES ONLY

VISA MasterCard

EVERGREEN COMPUTERS INT. (510) 526-8667

HIGH QUALITY SYSTEMS AT AFFORDABLE LOW PRICES!

MULTIMEDIA UPGRADE KIT

ADD TO ANY SYSTEM FOR ONLY $535

SOUND BLASTER EDUTAINMENT CD-16

- Sound Blaster 16
- Creative Labs CD-ROM
- Stereo Speakers
- Bundled Software: Software Toolsworks Multi Media Encyclopedia, Lucasfilm Games' Secret Weapons of the Luftwaffe, The Secret of Monkey Island and Loom; Broderbund's Where in the World is Carmen Sandiego? Deluxe CD-ROM Edition and Just Grandma and Me; and ICOM Simulation's Sherlock Holmes, Consulting Detective.

Call About System Upgrade To 486

2 YEAR LABOR 1 YEAR PARTS WARRANTY

30 DAY MONEY BACK!

SYSPER EISA/VESA LOCAL BUS

GET THE BEST OF BOTH WORLDS WITH:

Adaptec EISA Busmaster SCSI Controller
Genoa 8500VL VESA Local Bus Video Card
15" Flat Screen Non-Interlaced Monitor
200 MB SCSI Hard Disk

- 256K Cache
- 4 MB RAM
- 1.2 MB or 1.44 MB FDD
- Mini-Tower Case
- 101 Keyboard
- 2 Serial, 1 Parallel, 1 Game Port

[illegible]
15" FLAT SCREEN
MONITOR

486DX-33	486DX2-66
$2075	$2275

SYSPER 486 VL-BUS

W/130 MB HARD DISK & SUPER VGA COLOR MONITOR

SYSTEMS INCLUDE:

- 4 MB RAM on Board
- 1.2 MB or 1.44 FDD
- 130 MB IDE Hard Disk
- SVGA w/512K Card
- 14" Super VGA Monitor
- 1 Parallel/2 Serial/1 Game Port
- Desktop Baby or Mini Vertical Case
- Clock/Calendar w/Battery Back-up
- 101 Keyboard

486SX-33 W/128K	$995
486DX-33 W/128K	$1095
486DX50 W/128K	$1195
486DX2-66 W/128K	$1295

SYSPER 386 SERIES

W/80 MB HARD DISK & SUPER VGA COLOR MONITOR

SX33	$685
DX33 W/64K CACHE	$745
DX40 W/64K CACHE	$755

BOTH DX & SX SERIES SYSTEMS INCLUDE:

- 1 MB RAM on Board
- 1.2 MB or 1.44 FDD
- 80 MB IDE Hard Disk
- SVGA w/512K
- 14" Super VGA Monitor
- 1 Parallel/2 Serial/1 Game Port
- Desktop Baby or Mini Vertical Case
- Clock/Calendar w/Battery Back-up
- 101 Keyboard

MICRONICS 486 VL BUS SYSTEMS

- MICRONICS 486-33 VL-BUS
- 4 MB, 70ns, exp to 64 MB
- 256K Cache
- 170 MB Hard Disk
- 101 Maxi Keyboard
- Teac 1.2 or 1.44 MB Floppies
- MICRONICS VL-BUS Video ET4000
- SVGA Monitor .28 Dot
- MICRONICS VL-BUS IDE Controller
- Built-In 2 Serial/1 Parallel Ports
- Mini-Tower/Desk Top Case

W/170 MB HARD DISK

486DX-33	486DX2-66
$1645	$1995

CORPORATE AND GOVERNMENT PO'S WELCOME!

Genoa SYSTEMS CORPORATION VESA LOCAL BUS

GENOA TURBO EXPRESS 486VL-BUS MOTHERBOARD AND GENOA 8500VL 32-BIT GRAPHICS ACCELERATOR CARD

2 YEAR WARRANTY ON MOTHERBOARD & VIDEO CARD

SYSTEMS INCLUDE

- Genoa TurboExpress 486VL Motherboard
- 32 Bit Local Bus Genoa Video Card (16 Million Colors)
- 32 Bit VL-BUS IDE Controller
- SVGA Monitor .28 dot
- 128K Cache on Board Exp to 256K
- 4 MB RAM Exp to 32 MB
- 1.2 MB or 1.44 MB Floppy Drive
- 170 MB Hard Disk w/64K Cache
- 1 Parallel/2 Serial/1 Game Port
- 101 Key Keyboard
- 200 Watt Power Supply
- Baby AT or Mini Tower Case

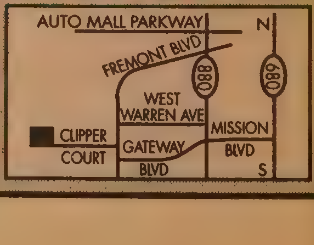
W/170 MB HARD DISK

486DX-33	486DX-50	486DX2-66
$1325	$1425	$1525

SYSPER

SYSPER TECHNOLOGIES, INC.

4031 CLIPPER COURT, FREMONT, CA 94538
HOURS: MON-FRI: 9AM-6PM; SAT: 10-4 PST
FAX: (510) 651-9699



TEL: (510) 651-8002

PRICES SUBJECT TO CHANGE W/O NOTICE.
NOT RESPONSIBLE FOR TYPOGRAPHIC ERRORS

Letters

DEA SETS THE RECORD STRAIGHT

In last month's issue, discussing the outcome of the Steve Jackson Games case, news editor Paul Hoffman wrote: "The concept that the government could take all the assets of a bulletin board system, put it out of business, and never file charges is indeed scary for computer users. One only needs to look at the zeal of the US Drug Enforcement Agency when it gets warrants to see how frightening the prospects could get for computer users. The DEA can seize property and sell it to fund their activities, without even bringing a single charge against the owner. Recently, a Ventura County district attorney said that the DEA was so interested in getting a $5 million ranch that was supposedly used to grow marijuana that they put together a trumped-up warrant and tried to seize the ranch, killing the owner during the raid; no marijuana was found and no charges have been brought. If the Secret Service gets such powers in its raids on supposed computer criminals, all the time claiming to not know the laws, the situation could be just as dire."

We subsequently received the following communication from Ralph B. Lochridge of the Los Angeles Division of the DEA. While we continue to believe that such egregious incidents as the lethal raid in question and the Steve Jackson Games episode deserve public scrutiny and accountability, whatever agency is responsible, we are happy to set the record straight regarding the nature of the DEA's involvement in the Southern California case.

—Eds.

This letter is regarding *MicroTimes* issue #108, in which you published an article by Paul Hoffman that dealt with the DEA.

First, Mr. Hoffman refers to DEA as the Drug Enforcement Agency—the correct name is the Drug Enforcement Administration. Secondly, the statement that he in part attributes to the Ventura County district attorney is false. Mr. Hoffman should check his facts.

The search warrant, the affidavit supporting the search warrant, the execution of the search warrant, the entry onto the premises, and the death of Don Scott were done solely by Deputy Sheriff Gary R. Spencer and other members of the Los Angeles County Sheriff's Department.

The role of the DEA was in providing observations that were written into the warrant by the Sheriff's office, and at the request of the LASD two DEA agents were on the ranch at the time the warrant was executed by the Sheriff's Department. At no time did those agents enter the residence; only the Sheriff's Department made entry into the Scott house.

This was a Los Angeles Sheriff's Department-led investigation and raid.

According to the report on the death of Donald Scott by District Attorney Michael D. Bradbury, he states, "Because it cannot be proven that Spencer knowingly lied in the affidavit, there is an insufficient basis for a perjury prosecution."

Ralph B. Lochridge
Director of Public Information
DEA, Los Angeles Division

A CALL FOR VOLUNTEERS

We want to tell *MicroTimes* readers about an important need that many will get a lot of satisfaction out of filling.

For six years, CompuMentor has been organizing computer professionals who volunteer as on-site "mentors" to nonprofit organizations. Volunteer mentors are essential because nonprofits rarely have computer-proficient staff or adequate funds to pay for skilled computer consultants. Yet they must use computers effectively to deliver services to their communities and fulfill their vital missions. We find that many computer professionals are quite eager to share their knowledge with worthy nonprofits.

Some examples of the contributions mentors are making to increase the technical know-how of the nonprofit community:

- An urban development organization needed help with census data analysis. A mentor with professional background as a data manager did a rewrite of the database code and then trained the staff on the new system.
- A women's economic development organization needed training on an online system. We found a mentor with the requisite skills and interests who then became their onsite computer guru.
- An AIDS service organization for artists asked for a computer needs assessment. The mentor helped determine staff resources, hardware, and software for a very large database project.

Right now, specific nonprofit requests are exceeding our supply of volunteer mentors. We're turning to the readers of *MicroTimes* to find individuals who will offer their skills to help these groups. There is an upsurge in requests for the following particular skills from nonprofits in the Bay Area:

- Mac/DOS basics: setup, system management, troubleshoot, utilities
- Needs Assessment: develop a specific workplan out of general requests
- Databases: select, analyze, program, debug (especially FileMaker Pro, Paradox, dBASE, FoxBase Pro, and 4th Dimension)
- Local Area Networks (2–10 stations): assess, select, install, troubleshoot
- Accounting Packages: select, install, support

If you can fill these needs and are in the Bay Area, please run, don't walk, to the nearest phone and call us at (415)512-0473 or 1-800-659-3579. You can also respond via email to *julesg@well.sf.ca.us.*

Debbie Miller
Network Development Specialist
Daniel Ben-Horin
Executive Director
CompuMentor
San Francisco

PROVEN TECHNOLOGY, INC
3160 De La Cruz Blvd., Suite 108, Santa Clara, CA 95054
Bus: (408) 496-0369 Fax: (408) 496-0259
Hour : Mon - Fri 9:00a.m. - 5p.m.
Your One-Stop Shopping Source of Computer-LAN-WAN Networking Solution

MULTIMEDIA

Panasonic CD-ROM 523 (380ms)
Soundblaster Pro II - Stereo
Mini Speaker
$479
Software Included:
- ***Microsoft Works, Microsoft Bookshelf***
- ***Creative Sounds , Sherlock Holmes***
- ***Action , Authorware Star, Tempra***

Family/Educational software bundle ---- $CALL

Six-disc CD-ROM DRM-604X w/ctrl $1399
TOSH XM30401B / XM3401E $479/589
- 200ms, 330kb/sec transfer rate,4X sampling, Multisession
NEC CDR 84 --- $499 w/ controller $549
MItsumi 630Mb, 350ms $199
CD-ROM S/W Bundle Dos/Win-6 Titles $ 89
80 Watt Stereo Speaker w/build in APM $ 59
Fun/Educ. CD Titles starting at $29.00

Adaptec 1542CK 16bit Master kit ------- $259
Adaptec 1522CK 16bit Directional Kit -- $149
Trantor T130 8bit SCSI Universal driver $ 79

New Products

- **2.88MB 4 FD Cntrl w/ Multi-I/O IDE ---------------- $ 59**
- SCSI+IDE+FDC COMBO Cntrl Novell Cert. --------- **$109**
- **IDE Caching Cntrl 4HD/2FD-0k ISA- $119 VESA- $239**
- IDE VESA Local Bus HD/FD controller----------------$ 59
- VGA VESA Local Bus w/ 1MB ------------------------ $129
- IDE + 4 FDC + 2.88MB FDD -------------------------- $119
- 2.88 Drive TEAC--------- **$89** JPN----------------- $ 84
- High Speed AT I/I 2S/1P/1G 16550chip---------------- $ 39
- **BusLogic BT-545S Bus Master FAST scsi w/kits ---- $259**

WAN (DSU/CSU) T1 & ISDN
Authorized ADTRAN Distributor
- DSU II AR -DSU III AR
- 56/64K DSU/CSU $CALL
-T1 CSU $$$$ - Mounting Shelf
- Client throughout N. California
24 Hrs Technical Support
***Resellers* are Welcome**

Preconfigured Network Special

File Sever	**4 Workstations**
***486/33Mhz 256K Cache**	*386Sx-33 Mhz
*4MB RAM, 213MB HD	*1MB RAM
*1.44MB FDD	*1.44MB FDD
*14" Mono Monitor	*14" Mono Monitor
*16 bit ethernet card	*16 bit ethernet card
*Middle Tower Case	*Mini Tower Case

Includes: Novell Netware 3.11 (5 USERS)
Option: Tape Backup System,Concentrator, UPS
Sale Price: $4,599 ***Experienced CNE on staff***
Please call for Network Configuration Not Listed

Networking, Email, & Backup Special
Da Vinci-v2.02-10 users Wins/DOS $299

- NE2000 /T Compt.--$59 • 3-in-1---$79
- **EtherLink III** (3C509) /TP ----- $139
- 10BaseT-HUB-6/8/12 ---$169/$219/$479
- **UPS** -Americal 600/900VA--$297/$419
- **Tape Backup** Colorado PT25 2GB Netware, Lantastic, 3Com compatible **SCSI w/Cntrl & Backup S/W ---- $1119**
- Parallel Port Backup Sys 250Mb--$439
- Colorado 120/250Mb -------- $159/229

Monitor & VGA Card

Cirrus Logic Hi-Color SVGA w/1MB **$55**
Relisys 14"(Nonglare)SVGA .28 Interlaced **$249**

E-Tech Pocket FaxModem

P1496MX 14.4K Data/9.6K Fax, V.32,V.42 $259
P9696MX 9.6K Data/Fax,v.32,v.42,MNP5 $199

RELISYS FaxJet

Multifunctional Fax machine that connect to PC/MAC for faxing,copying, printing, & scanning incl. polling, delayed calling, & dailing directory
DOS $589 DOS & WIN $599 MAC $625

Terms:
•Prices & Availability subject to change
•Not responsible for typos •Co. P.O.upon credit approval
•Warranty: 1 Yr. Parts & Labor on systems

Casio SF-R20: Further

Plus: PCMCIA News, Cellular Standards

BY MITSU HADEISHI

PENS AND PALMTOPS

I discussed the SF-R20 last month, but it's so affordable and useful that I decided it was worth writing another column on it. (In fact, I liked the unit so much that I purchased one.) This column features more detail about the unit—its problems, virtues, and features, as well as advice about how to use it to its fullest capability. I'll probably continue to talk about various tips and tricks regarding this palmtop and others in future columns. I encourage readers to send in their favorite tips and tricks as well

As I noted last month, the Casio B.O.S.S. series has traditionally been a poor second in quality and usability to the Sharp Wizard series, which has had most of the market share up until now. However, the SF-R20 is a new entry by Casio, and occupies a price/performance niche which isn't really served by the Sharp Wizard series yet. The SF-R20 costs about the same as the Sharp OZ-8200, but comes with twice the memory (256K instead of 128K) and a built-in spreadsheet as well. Its capabilities actually approach those of the Hewlett-Packard 95LX, which is in fact a palmtop computer, not just an organizer. The spreadsheet in the SF-R20 is the key element that sets the SF-R20 apart from other organizers.

SF-R20 and the HP 95LX

While the two machines are really in different categories, their capabilities approach each other, and some people may be looking at both machines to decide which one best suits their needs. The SF-R20 is an electronic organizer with a spreadsheet added in; the 95LX is really a full-blown DOS-compatible palmtop with Lotus 1-2-3 built in. In terms of price, the 512K 95LX sells for about $100 more than the SF-R20, however, to really make use of the SF-R20 you need to buy the serial interface cable and transfer software, which puts the machine in a similar price range as the 95LX with its much cheaper serial cable.

At first glance, one might think the 512K HP 95LX is the more capable machine. There's no question that the 95LX is more powerful in some respects: it carries with it a full-blown version of Lotus 1-2-3, it can run DOS applications, and so forth. However, DOS is not the ideal operating system for a palmtop organizer. Not only is it wasteful of precious RAM, but a 30K spreadsheet stored on the RAM disk actually uses at least 60K of RAM while being edited, due to duplication of RAM use—30K on the RAM disk itself, and at least an additional 30K while loaded into working memory. In addition, Lotus 1-2-3 is not as frugal with RAM as the Lucid spreadsheet in the SF-R20.

256K BYTES
ITEM
QTY
AMOUNT
CODE
CAPS
Edit
Range
Goto
Recalc
More
CASIO
EXECUTIVE
BOSS
Business
Organizer
Scheduling
System
Lucid 3-D
ON
OFF
256KB

SF-R20 B.O.S.S

The organizer applications in the 95LX do not take advantage of the graphical capabilities of the display, and in general are less friendly in appearance and use than those on the SF-R20.

The Lucid spreadsheet in the Casio SF-R20 is very conservative in its use of memory. Worksheets are operated on "in place"; there is no separate "file" into which they are saved, thereby avoiding duplication of RAM use. In addition, the Lucid spreadsheet is written to be extremely stingy with RAM; a typical spreadsheet file in 1-2-3 format often shrinks considerably when converted and uploaded to the SF-R20. For example, a checkbook spreadsheet I was using on my PC went from 60K when saved in Microsoft Excel format to 40K in Lotus 1-2-3 format to only 20K when loaded into the SF-R20. The total memory capacity of the SF-R20 is much larger than it at first appears; due to this frugality with RAM, one may even be able to store and work on more data on the SF-R20 than on a 512K 95LX, because the 95LX can consume more than twice as much memory as the SF-R20 for the same data.

The SF-R20 also comes with context-sensitive help and a friendly appearance to its various functions. The World Time function even highlights the various time zones in the world one at a time; if you're traveling, you might be able to actually pinpoint which time zone you happen to be in by using the world map, as well as setting by the city you're currently in. The 95LX, by

RESOURCES:

Casio Executive B.O.S.S. SF-R20
Casio, Inc.
1-800-762-1241.

Cellular Digital Packet Data Group 0.8 Standard
Contact Tom Solazzo, CDPD Project Coordinator
Pittiglio, Rabin, Todd, and McGrath
(714)545-9400

IntelliLink for Windows
IntelliLink
98 Spit Brook Rd., #12
Nashua, NH 03062
(603)888-0666

RangeLAN/PCMCIA
Promix, Inc.
295 North Bernardo Ave.
Mountain View, CA 94043
(415)960-1630

SM9PSDXMP3 Pseudo-static PCMCIA RAM card
SMART Modular Technologies
45531 Northport Loop West, Bldg. 3B
Fremont, CA 94538
(510)623-1231

Copyright © 1993 by Mitsu Hadeishi. All rights reserved.

INTEGRATED NETWORK SERVICES

You deserve expert network consulting services - don't settle for less.
All of our technicians and consultants are Novell Certified NetWare Engineers.
InterConnectivity is our Speciality - Apple - DOS - Windows - UNIX - Mini - Mainframe
Complete LAN, Email, FAX, CD-ROM, Remote Access and
Application Solutions for Your Business.

NetWare 4.0
Upgrade
Specialists

NetWare 4.0 - Enterprise Network Solution

The latest version of Novell's flagship OS finally brings full enterprise wide functionality and manageability to the desktop LAN. This powerful network operating system provides your organization with:

- Seamless enterprise wide resource sharing
- Single point user, group, and resource management
- Dynamic allocation of resources across the enterprise
- Sophisticated disk storage enhancement
- Graphical administration tools
- Superb on-line documentation
- Support for more storage mediums, including CD-ROM
- Wide Area performance enhancements

If you already use NetWare, let us help you upgrade to 4.0! If you are new to NetWare, let us help you decide what version fits your organization's needs!

➢ ***Local/Enterprise/Wide Area Network Design and Installation***
- Ethernet/10BaseT • Token Ring • FDDI • Wireless

➢ ***Local/Enterprise/Wide Area Network Service and Support***

➢ ***PC Interconnectivity Solutions***
- DOS-Windows-Apple-Unix

➢ ***Mainframe/Mini to Desktop Connectivity Solutions***
- IBM, DEC, UNIX Projects

➢ ***LAN Based Email Design, Installation Training***
- cc:Mail • MHS Systems

➢ ***Fax Solutions***

➢ ***Application Design***

➢ ***Advanced Network Accounting and Security***

➢ ***Network Management Solutions***

➢ ***Document Imaging Networks***

➢ ***Remote Communications Solutions***

➢ ***CD-ROM Systems***

FAX Solutions for Your LAN

Why spend thousands on slow, inefficient fax machines? If you have a LAN, you can utilize it to provide desktop faxing capabilities to your entire organization! We offer FAX server technology from Intel, the leader in personal computer based FAX products. Let us show you how to provide full fax coverage to your entire enterprise - right from the desktop!

SERVICE AND SUPPORT

24 Hour Emergency Service
Network Management
Telephone Support
Service Contracts

Novell
Certified
NetWare
Engineer

⁂

INTEGRATED NETWORK SERVICES

Are you unhappy with your current service provider?
Our customers are benefitting from our experience in desktop networking - you can too!

Phone (415)922-6295 • Free Initial Consultation • FAX (415)474-7078

comparison, has no graphical map associated with its World Time function. This is, of course, just a nicety, but it does detract from the overall sense of design of the 95LX.

Overall, of course, which unit is right for you depends on intended use, as always. For those people who primarily want a personal information manager with the added capability of a spreadsheet, the SF-R20 could well be the better choice. Those who need full Lotus 1-2-3 power or DOS compatibility would go with the 95LX.

For The Sharp User

Many people already have a Sharp Wizard and may be considering upgrading to the Casio SF-R20. There are a few things you should know about when thinking about this kind of upgrade.

First, converting your data from the Sharp Wizard to the Casio format, will require the use of an intermediate format for converting your data. There is a standard format called the "SDF" format, which I believe stands for "standard delimited format"—basically a text file in a special format, just a list of text fields surrounded by double quotes and delimited, usually, by commas. You can even edit these SDF files in a text editor on your PC if you like. I found it fairly straightforward to convert my telephone and memo files from the Wizard to the Casio, since both read and write SDF files in the same order. One difference is that the Casio is limited to 384 characters per entry, much less than the OZ-8000 series, so some memo entries or telephone entries have to be split up before you can convert them. This isn't so bad, since the phone book supports "free fields" into which you can add additional comments or information that didn't fit in the address field.

> *There's no question that the 95LX is more powerful in some respects: it carries with it a full-blown version of Lotus 1-2-3, it can run DOS applications, and so forth. However, DOS is not the ideal operating system for a palmtop organizer.*

Converting Schedule information is a bit more difficult. The SDF formats are completely different, and a couple attempts at using Sidekick format as an intermediate conversion format did not work for me, either. I ended up just reentering my Schedule entries by hand, working from a text file of the SDF output from the Wizard link program.

There are third-party programs, such as IntelliLink for Windows (mentioned in a previous column), which allow you to transfer data between a number of different organizers and the PC, including the Casio B.O.S.S. series and the Wizard series; I understand a version exists which supports the SF-R20. Though this product may make conversion much easier, it also costs $99.95 retail, so you might want to try converting using the SDF or Sidekick formats instead of spending the additional money for a third-party link program.

Some other differences: There is only one telephone book. Searches over telephone data are done in a case-sensitive manner only (unfortunately), so if you have keywords you're using, you ought to make sure they're all the same case (I adopted the convention that all keywords will be lower case except for proper nouns). As mentioned above, text entries are limited to 384 characters per entry. Otherwise, the two units are remarkably similar in use and user interface; the Casio has a slightly more complicated user interface, but the online help is much better. The Scheduler and World Time functions on the Casio are a lot more useful and flexible, in my opinion, than the similar functions on the Wizard.

Tricks And Tips

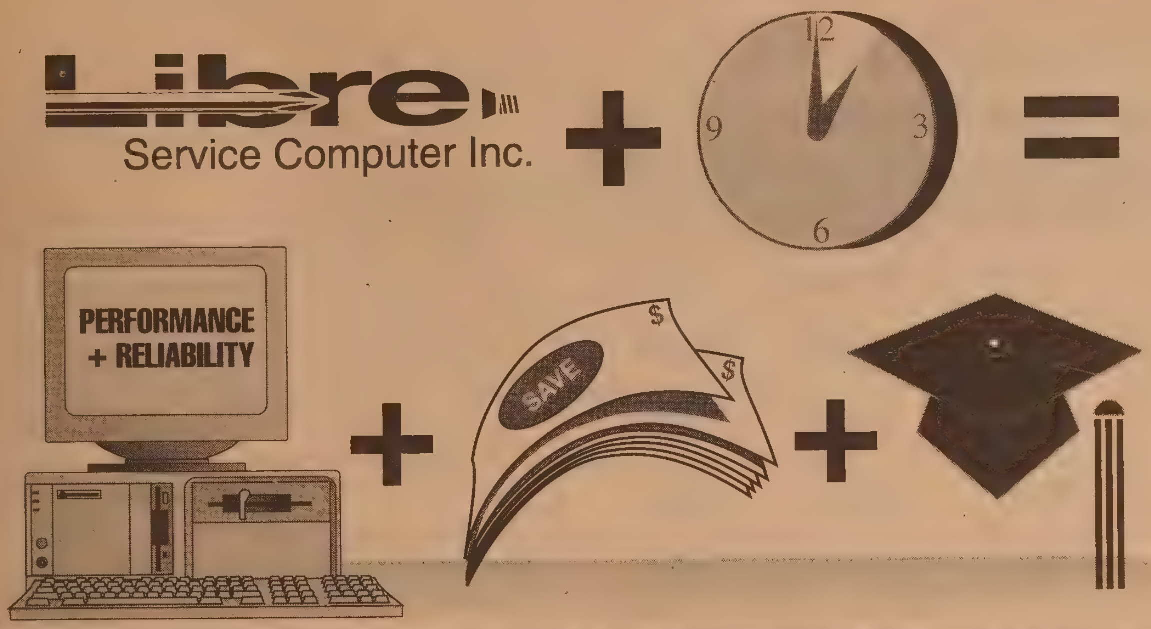
If you like to use the SF-R20 as a note-taking device, there are three different modes which I find useful.

The first is the Memo mode. Its advantage is that you can search over the text of all memos to quickly find a particular entry. It's quick and easy to store a new memo: just hit the Memo key, start typing, then hit "Set" when you're done. The problem with this mode is that if you're taking notes and do not hit the Set key, you lose your data if you wait too long and the power goes off automatically. (This is a problem with the Sharp Wizard as well.) In addition, the 384-character limit can be annoying.

The Free File mode doesn't have these limitations. As you type, the file is modified instantly. The disadvantage of this is that you cannot back out changes by hitting ESC or Clear—anything you type instantly modifies the file. The worst problem is that there is no way to search the Free Files for text. Also, the text editor is not very good: If you need to insert text in the middle of a file, it can be very slow. There is no way to page up and page down in a free file; you can only go to the top or bottom of a file, or move line-by-line in the file. So, overall, the Free File mode is good for taking down notes, but not very good for editing or inserting new information. In addition, it's terrible as a database, since you cannot easily search over the data.

I actually use the Spreadsheet mode for some note-taking at times. Though it is not very well suited to be a text editor, it has a number of advantages. You can page up and down in the files, you can do search and replace, and you can even insert spreadsheet calculations into your notes. In addition, copying and pasting between different files is rather easy. The Spreadsheet mode has some disadvantages, however. There is no way to cut and paste from the spreadsheet into the other modes, such as Memo or Free File. The Spreadsheet lives alone in its own world—it's like having two separate machines in one: an organizer, and a spreadsheet machine. To move data

Libre
Service Computer Inc.



VESA LOCAL BUS
IDE - I/O Controller

- 2 HD, 2 FD, 2 S, 1 P, 1 G;
- Supports 2.88 MB FD;
- Up to 800% performence Improvement;
- Software drivers included

Introductory Price: **$ 59**

Local BUS System Kit

486DX-33Mhz 128K Cache;
VESA Standard 4 MB;
Mini-tower;
IDE 2S, 1P, 1G;
1.2 & 1.44 floppy drives;
130 MB HD;
Local BUS video card;
14" SVGA monitor;
101 KB;

Monthly Sale

Upgrade to 486-50DX Mhz

$1,229 $1369

IBM® Inside/MIPS 14.7

486-SLC 2-50 Mhz
16k internal cache CPU ;
On board math co-processor;
2 Local bus VESA Slot;
4 MB; Mini tower;
IDE 2S, 1P, 1G;
1.2 & 1.44 floppy drives;
130 MB hard drives;
Local bus video card / 1 MB;
14" SVGA monitor 0.28;
101 keyboard.
Free New Horizon training class
3 yrs warranty on system board

New

$1,299

IBM ® is registered trade mark of International Business Mchine Incorporation.

386DX-40MHz
with 128K Cache System Kit

Basic Features:
1 MB standard;
2 serial, 1 parallel & 1 game ports;
IDE HD/FD Controller;
1.2M or 1.44 floppy drive;
101 keyboard;
Mini-tower or desktop case w/ power supply

Best Price

$319
(upgradable to 486 DX, SX or DX2)

Motherboard with CPU

386SX-33Mhz	$105
386DX-40Mhz (upgradable to 486)	$160
486DX-33Mhz 128K	$410
486DX-50Mhz 128K	$570
486DX-33VL 128K	$420
486SLC2-50VL 64K	$369
386/486 128k cache upgradable motherboard w/o CPU	$ 99

Hard Drives & Floppy Drives

40 MB HD (IDE)	$120
80 MB HD (IDE)	$180
130 MB HD (IDE)	$205
200 MB HD (IDE)	$280
1.2 MB floppy drive	$ 48
1.44 MB floppy drive	$ 42

System Kits

With: 1MB; IDE HD/FD controller; 2 serial, 1 parallel and 1 game ports; 1.2 or 1.44 floppy drive; 101 KB; mini-tower or desktop case with power supply.

286-12 Mhz	$225
386SX-33Mhz	$280
486DX-33Mhz 128K	$595
486DX-40Mhz 256K	$625
486DX-50Mhz 128K	$745

Video Options:

Mono graphic card	$15
SVGA card (1280X1024)	$50
Window Accelerator Card	$55
SVGA VL /1MB	$90
SVGA monitor .39mm	$215
SVGA monitor .28mm	$250
SVGA monitor non-int	$270
15" SVGA .28mm	$355
15" SVGA MP Control	$435

Ask about our On-site Warranty

Multi-media Kits

Mitsumi CD Rom	$200
Mitsumi CD Rom+ 4 Titles + SoundCommander	$320

Others

IDE controller w/ IO	$15
VL IDE-I/O (NEW)	$59
Serial mouse	$12
2400 baud modem	$30
2400/9600 S/R Fax modem	$50
101 keyboard	$20
Mini-tower case	$55
Medium tower case	$75
Panasonic KXP1124i prntr	$299
250MB tape back up	$185
Sound Commender Pro	$ 99

FREMONT
48860 Milmont Drive, 102C
Fremont, CA 94538
510-438-0402
Fax: 510-438-0489
Tue-Sat 10 am to 6 pm

CAPITOLA
1220 41st Avenue, Unit G
Capitola, CA 95010
408-479-7319
Fax: 408-479-4316

SAN FRANCISCO
(NEW LOCATION)
1569 Sloat Blvd. Suite 300
(Second Floor of Crown Book)
San Franciaco, CA 94132
415-731-8966
Fax: 731-8967
Tue-Sun 11 am to 6 pm

SAN MATEO
2505 S. El Camino Real
San Mateo, CA 94403
(Cross Street: 25th Ave)
415-578-1614
Fax: 415-578-0268

SACRAMENTO
5112 Madison Ave.
Sacramento, CA 95841
916-349-8200
Fax: 916-349-8299
Tue-Sat 10 am to 6 pm

No Down Financing Available

•Apply for the Libre-Credit Card (with no application fee)

Advertised prices based on 3% cash purchase discount. Price subject to change without notice. Check for our everyday low price and other new products.

TRIAD COMPUTER

"Your solution to computing"

System	Basic System	Basic Sys. w/4MB +1MB card .39 dp Monitor	Basic Sys. w/4MB 120MB H/D 1MB Card .28dp Monitor	Basic sys. w/4MB 170MB H/D 1MB Card .28 NI Monitor	Basic sys. w/8MB 250MB H/D 1MB Card .28 NI Monitor
Vesa Local Bus 486DX2-66/256k	$758	$1139	$1345	$1430	$1630
Ves Local Bus 486DX-50/256K	$678	$1059	$1265	$1350	$1550
Vesa Local Bus 486DX-33/256K	$548	$929	$1135	$1220	$1420
ISA 486DX2-66/256K	$740	$1095	$1301	$1386	$1586
ISA 486DX-50/256K	$660	$1015	$1221	$1306	$1506
ISA 486DX-33/256K	$530	$885	$1091	$1176	$1376
ISA 486DLC-33/128K	$392	$745	$951	$1036	$1236
ISA 386DX-40/128K	$290	$645	$851	$936	$1136
ISA 386SX-33/128K	$231	$576	$781	$866	$1066

Basic System configuration: Motherboard, CPU, 1MB Memory install, IDE with 2S/1P/1G 1.2 & 1.4MB F/Drive, Internal Clock & Cal. build-in, Mini-Tower with Digital & 230watts P/S, 101 Enhanced K/B

Case Upgrade:

Mini-Tower to Mid-Tower	$ 20
Mid-Tower to Full-Tower	$ 30

Monitors Upgrade:

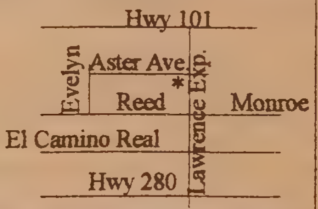
SVGA .39 to SVGA .28	$ 45
SVGA .28 to SVGA NI .28	$ 40
SVGA .28NI to 15" NI .28	$ 165
Addonic 15" NI .28	$ 445
Addonic 17" NI .31	$ 715
Addonic 17" NI .26	$ 875
KFC 15" NI .28	$ 455
KFC 17" NI .28	$ 795
Viewsonic 6E NI .28	$ 315
Viewsonic 7 17"	$ 915
NEC 3FGe 15"	$ 585
NEC 4FGe 15"	$ 695
NEC 5FGe 17"	$ 1295

Special: VLB 486DX-33 Mother Board with 256K Cache $100

TRIAD COMPUTER
System & Peripheral
1176 Aster Ave. #B
Sunnyvale, CA 94086
Hrs: Monday - Friday
9:00AM - 6:00 PM

Tel: (408) 247-7356
Tech.:(408) 247-8721
Fax: (408) 247-5976

Not responsible for typo-errors
Prices subject to change w/o notice.



TOSHIBA/NEC/AST/ZENITH/MACINTOSH NOTEBOOKS ALL MODELS LOWEST PRICES

TEXAS INST. TM 4000-SX25-4-120-LCD	$1799
TEXEL DM-5024 CD ROM, EXT-MAC	$495
MAC. SIMMS 1 x 8 x 70ns/ 8CHIP	$30.99
SYQUEST INT. 105MBIDE + cart	$549
ORCHID Fahrenheit LB	$190
DIAMOND Stealth Pro LB 2MB	$350
CANNON BJ-10ex Portable Printer	$275
TEKTRONIX COLOR PRINTERS	CALL
HP VECTRA COMPUTERS	CALL
DeskJet 500	$375
APPLE POWERBOOK 165C 4/80	$2975

'ALR' PENTIUM SYSTEMS ORDER NOW!

NEED MORE POWER ?
WANT MORE PROGRAMS ?
SEE FASTER GRAPHICS ?

HARDDISK UPGRADE	$20
MEMORY UPGRADE	$20
MOTHERBOARD UPGRADE	$30

*Labor only. Call for prices on AMI, ALR, MICRONICS motherboard, MAXTOR, SEAGATE, CONNERS, HP Harddrives.

COMPARE SUPER STORE PRICES IN SAN-FRANCISCO COMPARE

VOLUME PRICING ON ALL KIND OF SIMMS, MEMORIES & HARDDRIVES.
WE CARRY ALL KIND'S OF IBM, APPLE, TOSHIBA, COMPAQ & HP.

A and M Technologies

717 Market Streer Suite #602
San Francisco, CA 94103
Phone: (415) 974-3644
Fax: (415) 974-1318

to and from the Spreadsheet mode to other modes, you need to use the PC Link software. With this software you can convert to and from text files and other spreadsheet files and do whatever other manipulations you need.

Important notes regarding the PC Link software: When purchasing the PC Link for the Casio B.O.S.S. series, make sure it is v3.5 or later. Earlier versions do not fully support the SF-R20. The SF-R20 also comes with some mysterious software (SFD.EXE) which is apparently designed only for the Japanese version of the SF-R20, in addition to the "Lucid Link" software intended for use in transferring data to and from the Lucid spreadsheet. A call to Casio technical support about this mysterious SFD.EXE resulted in the answer: "Ignore it." There is no explanation of this in the Casio documentation. In addition, when using Lucid Link, you have to set the RTS polarity to OFF or it will not work. This is also not documented.

More PCMCIA News

Proxim, Inc., has begun shipping a wireless LAN adapter called the RangeLAN/PCMCIA. The adapter uses a PCMCIA Type II slot, and supports Novell NetWare 3.x, NetWare Lite, and Microsoft Windows for Workgroups, among others. The suggested retail price is $595. The server/desktop ISA PC adapter costs $495, and a version intended to plug into a PC via the parallel port is $595.

SMART Modular Technologies has produced a series of battery-backed "pseudo-static" RAM devices, intended to replace costly static RAM PCMCIA cards for applications requiring non-volatility over periods of ten days or less. The SM9PSDXMP3 uses a rechargeable battery which can provide up to 6MB of RAM; 50% more capacity than is available on static RAM cards. In quantities of 1000 or more, the 2MB PSRAM card will be priced at $90 each.

Cellular Packet Data Standard

A group of cellular carriers which is supporting the cellular digital packet data project has released its v0.8 of the open specification for transmission of digital data packets over cellular networks. This final specification is intended for publication in July. A field test demonstrated the ability to successfully "channel hop" (changing cellular channels without losing the data stream), and also the ability of voice and data to coexist on the cellular network, using unused voice channels for data as needed. The specification is available for $100. Carriers involved in this project include PacTel Cellular, GTE Mobilnet, and Ameritech Mobile Communications, Inc., among others. ■

CompuMart

Quality, Service and Value!

Experience it in our Ultra Modern Showroom

COMPLETE PC SYSTEMS BY OPTIGOLD

ALL SYSTEMS ARE FCC CLASS B, 14" SVGA MONITOR INCLUDED

486DX-33/4M/130MB HD	$1,225
486DX2-50/4M/130MB HD	$1,285
486DX-50/4M/130MB HD	$1,370
486DX2-66/4M/130MB HD	$1,455

VLB or EISA motherboards are available by AMI, Micronics, NICE, AIR, Orchid

386SX-33/2M/40MB HD	$ 755
386DX-33/4M/80MB HD	$ 945
386DX-40/4M/80MB HD	$ 955
486SX-25/4M/80MB HD	$1,010

NOTEBOOK PC

CHAPLET	386SX-25/2MB/60MB HD	$ 950
	386SL-25/2MB/80MB HD	$1,325
CHICONY	386SX-20/2MB/60MB HD	$ 925
	486SXL-25/6MB/80MB HD	$1,375
IBM	THINKPAD 700C	CALL
TOSHIBA	1850C/ 4400C/ 6400C	CALL

DRIVES

Conner	80MB IDE	$179
	120MB IDE	$205
	174MB IDE	$229
	212MB IDE/ SCSI	$289
	250MB IDE	$329
Fujitsu	520MB IDE/ SCSI	$810
Quantum	85MB IDE	$185
	210MB IDE	$265
	240MB IDE	$329
Maxtor	212MB IDE	$279
	245MB IDE	$299
	340MB IDE	$395
	340MB SCSI	$549
WD	80MB IDE	$185
	200MB IDE	$325
	340MB IDE	$449

CONTROLLERS

Always	IN 2000		$169
Adaptec	1522/1522K	SCSI	$ 79/ $145
	1542C/1542CK	SCSI	$219/ $249
	1742A/1742AK	EISA/SCSI	$349/ $425
DTC	2270VL	VLB/IDE	$ 95
Promise	DC200	IDE CACHE	$145
	DC-4030VL	VLB/IDE CACHE	$189
Ultrastor	14F	SCSI	$220
	34F/34FK		$289/ $359

MONITORS

MAG	MX15F	15" .28 NI Flat	$ 575
	MX17F	17" .28 NI Flat	$1049
NEC	3FGx	15" .28 NI Flat	$ 599
	4FG	15" .28 NI Flat	$ 729
	4FGe	15" .28 NI Flat	$ 769
	5FG	17" .28 NI Flat	$1295
	5FGe	17" .28 NI Flat	$1165
	6FG	20" .28 NI Flat	$2345
Viewsonic	VSC6E	14" .28 NI	$ 329
	VSC15	15" .28 NI	$ 639
	VSC7	17" .28 NI	$ 959
	VSC17	17" .28 NI	$1189
	VSC8	20" .31 NI	$1575
	VSC20	20" .31 NI	$1820

NETWORK

3COM	509 Etherlink III TP/ Coax	$139
Artisoft	Lantastic 2MB Startkit	$325
	Lantastic Noderunner 2000/C,T	$174
Intel	Etherexpress 16 TP/ Coax	$125
Novell	Netware Lite DOS/WINDOWS	$ 69
	Netware 3.11 5 Users	$549
	Netware 3.11 10 Users	$1275
	Netware 3.11 20 Users	$1699
SMC	Elite Ethernet Plus 16 Coax/ TP	$ 129

MULTIMEDIA

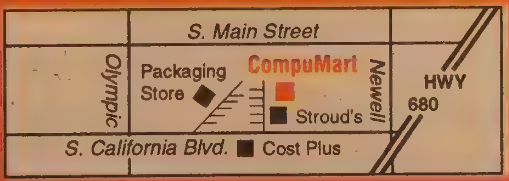
Creative Lab	Sound Blaster	$ 81
	Sound Blaster Pro	$135
	Sound Blaster Pro 16 ASP	$239
	Video Blaster	$349
	Edutaiment 16	$549
Media Vision	Pro Audio Spectrum 16	$179
	Pro Movie Spectrum	$289
	Fusion CD 16E	$459
Misumi	350MS CD-ROM w/ Kit	$199
NEC	CDR-84-1 280MS Internal CD-ROM	$459
	CDR-74-1 280MS External CD-ROM	$599
	CD Express Kit w/ CDR-27	$359
Sony	CDU31A Internal CD-ROM	$225
	CDU541 Internal CD-ROM	$399
	CDU7211 External CD-ROM	$525
Texal	DM-3024 265MS Internal CD-ROM	$375
	DM-5024 265MS External CD-ROM	$485
Toshiba	3401B 200MS Internal CD-ROM	$464
	3401E 200MS External CD-ROM	$580
New Media	WatchIt TV	$265
Logitec	FotoMan	$540
Microsoft	Sound System	$199

TAPE BACK-UP

Colorado	DJ-10	120MB Int	$159
	DJ-20	250MB Int	$225
	Trakker	120MB Printer port	$339
	Trakker	250MB Printer port	$409

VIDEO BOARDS

ATI	Graphic Ultra 1MB	$225
	Graphic Ultra + 1MB/ 2MB	$289/ $339
	Graphic Ultra Pro 2MB	$445
	Graphic Ultra Pro VLB 1MB/2MB	$299/ $399
Diamond	SpeedStar Pro VLB 1MB	$140
	SpeedStar 24X 1MB	$159
	Stealth 24 1MB	$165
	Stealth Pro VLB 1MB/ 2MB	$255/ $355
	Viper 2MB VLB	$439
Orchid	Fahrenheit 1280+ 1MB	$194
	Fahrenheit VA 1MB	$229
	Fahrenheit VLB 1MB	$185
	Fahrenheit VA/VLB 1MB	$255



SCANNERS

Caera	Typist Plus Graphics	$ 299
HP	ScanJet IIC	$1299
Logitech	Scanman 32	$ 135
	Scanman 256 w/ Catchword Pro	$ 345
	Scanman Color Hand Scanner	$ 554
Tamarack	ArtiScan Flatbed Scanner Color 600DPI	$ 950
Microtek	Scanmaker II Color 600DPI	$ 859
Relisys	Flatbed Scanner Color 600DPI	$ 849

PRINTERS

Citizen	GSX-230/ GSX-240	$265/$ 315
	PN-48	$ 285
Cannon	BJ-10EX/ BJ-20	$289/$ 349
	BJ-200	$ 359
Panasonic	KX-P2180	$ 169
	KX-P2123/ KX-P2124	$239/$ 329
HP	Deskjet 500/ 500C/ 550C	CALL

LASER PRINTER

HP	IIP+/ IIIP/4 /4M /4L	CALL
IBM	Lexmark 4019E	$ 775
Okidata	OL400	$ 599
NEC	Model 95	$1395
Panasonic	KX-P4410/ KX-P4430	$629/$ 885
QMS	PS410	$1375

SOFTWARE

Aldus	Pagemaker for Windows	$485
Borland	Borland C++ 3.1 & Application Frame	$485
	Paradox for Windows	$129
	Dbase IV	$459
	Quattro for Windows	$150
Corel	Corel Draw & CD for Windows	$365
Lotus	1-2-3 for Windows	$299
	AmiPro for Windows	$265
	Freelance for Windows	$335
Micrografx	Picture Publisher	$199
	Graphics Works	$ 99
Microsoft	Excel for Windows	$299
	Office for Windows	$375
	Word for Windows	$299
	Windows 3.1 Upgrade	$ 45
	Workgroup	$ 67
WordPerfect	Wordperfect 5.2 for Windows	$275
	Wordperfect 5.2 for Win Upgrade	$ 39

MODEMS

Hayes	Optima 14.4 + Fax Ext	$379
	Optima 14.4 Ext	$365
Intel	SatisFAXtion 400 Int/ 400E Ext	$395/ $399
Practical P	PM14.4Fax Modem Int/Ext	$209/ $225
	PM14.4 Pocket Fax Modem	$359
US Robotics	Sporter 14.4 Fax Modem Int/Ext	$195/ $225
Zoom	14.4 Modem Int/Mdoem Fax Int	$209/ $235

All prices are subject to change without notice.

(510) 946-1234

1320 S. California Blvd., Walnut Creek (Across from Cost Plus, next to Stroud's)

Monday-Friday: 9:30-8:00, Saturday: 10:00-7:00, Sunday: 12:00-6:00

Over 5,000 Software, Printers, Monitors, CD-ROM, Network Products, Computer Books, Magazines In Stock.

A Spreadsheet for the Home User

Lotus Offers A New Version Of 1-2-3 Tailored For The Home User.

BY ED KAHN

RESOURCES:

Lotus 1-2-3 for Home, $149
Lotus Development Corp.
55 Cambridge Pkwy.
Cambridge, MA 02142
(617)577-8500

As more and more applications become available, they are increasingly directed to specialized and sophisticated users. Yet, one of the fastest growing segments of the computer business is the home market. Laptops have come down in price to the point that many people who did not have the space to devote to a full computer system are buying the lightweight models and outfitting them with applications that can be easily mastered.

The most popular application is a word processor. There are literally hundreds of them on the market. The next most popular application is the spreadsheet. While there are a less complex spreadsheets available, many users feel the need to use Lotus 1-2-3 largely because it is the name they are most familiar with. When they open the package, they often discover that they have bought a bulldozer when all they needed was a shovel. Thousands of pages of documentation and the capability to run a huge business is simply more than they bargained for.

Lotus recently introduced a new version tailored specifically to the home user: Lotus 1-2-3 for Home. This is essentially the standard product, scaled down a little and appended with fifty financially oriented spreadsheets they feel will be of interest to the home user. The basic 1-2-3 spreadsheet is release 2.3, an excellent version of the product without too many bells and whistles. Unlike the full scale release, this one is limited to 256 columns by 512 rows. This is certainly more than enough room for most home applications. Many businesses can get along with this size spreadsheet as well.

Not only is the scope of this home model scaled down to something manageable, but the price has likewise shrunk. While the regular release carries a list price of something close to $500, this release has an affordable list price of $149.

Those new to computers often do not know which is the best application for a particular job. For instance, you could make an address list on a word processor. But this is not the best tool to use for the job. A spreadsheet with database capability like 1-2-3 would be a better choice because it lets you sort the names alphabetically as you make additions to your list.

While spreadsheets can also be used for jobs best suited to a word processor, they really shine when you are doing jobs that require number crunching. Take, for example, the person who has a few pieces of rental property. It would be possible to type a document that listed each property in rows down the left side of the page and in columns across the sheet indicate rents, mortgage payments, taxes, insurance, and the like for each property. Then you could total all of the columns and rows up so you would know how much rent you took in for all of the combined properties, as well as your total payments for mortgages, taxes, and insurance. As you totaled across each row, you would know the net income for each property. When one of these figures changed, you would have to recalculate the effected row and column manually. With a spreadsheet, on the other hand, your printed document would look the same, but recalculation would consist of nothing more than changing the one figure that needed to be altered. The number crunching would be done by the spreadsheet automatically once you had set it up the first time.

> ***While spreadsheets can also be used for jobs best suited to a word processor, they really shine when you are doing jobs that require number crunching.***

Likewise, you could do many jobs with a word processor, spreadsheet, or database manager. Lotus has included fifty SmartSheet templates. While some of them may actually be useful, I feel that a lot of them are there merely to pad the number of templates included. Some of them actually take advantage of the particular strengths of a spreadsheet, but others utilize the layout properties of a spreadsheet, but make no use of number crunching. For instance, a household inventory could just as easily be done on a word processor. A daily scheduler, broken down hour by hour, is actually more easily obtained from the stationary store.

Other included forms, however, are best suited to 1-2-3. A mortgage amortization template allows you to calculate monthly payments and amortization on a loan. A mortgage refinancing template lets you analyze the pros and cons of refinancing an existing mortgage. A perpetual inventory control template is useful for a small business that wants to keep track of inventory, sales and purchase orders for replacement inventory.

While many of these templates will never be used by most people, they are nevertheless useful in that they illustrate the kinds of things that a spreadsheet can do. A spreadsheet is a really valuable and powerful tool. This product is the real thing and easy enough to use so the novice can get both a good introduction to the tool and also work with the industry standard. The files created on this release of 1-2-3 are, of course, compatible with other releases of the program.

Lotus has chosen to include a very simple user's guide with this product. It is a wonderful way to get started. If you run into trouble, there is extensive on-screen help available by hitting the F1 key. If you still

Copyright © 1993 by Ed Kahn. All rights reserved.

New Generation of American Network Solutions

ISC Computers & Communications, Inc.

Network Products for Servers & Workstations

USRobotics · WordPerfect CORPORATION · ACER · AST COMPUTER · 3Com · Allied Telesis Inc · InterNet RESELLER PROGRAM

SunSoft A Sun Microsystems Inc. Business · MICROSOFT CONSULTING CHANNEL Alliance · COMPUTER ASSOCIATES Software superior by design. · SCO AUTHORIZED RESELLER · NOVELL · TELEBIT · Maynard An ARCHIVE Company · DigiBoard

Lotus · Axil WORKSTATIONS · intel · HEWLETT PACKARD · SynOptics Communications, Inc. · UNIVEL

HP Product Family

- HP 9000 versatile Business Servers-Series 800
- HP 9000 practical Business Workstations-Series 700
- Call for HP/CA-UNICENTER bundled promotion.
- HP LaserJet 4si MX for Multiple platforms Networks.
- HP PaintJet XL300PS RISC based Postcript......$3155
- HP ScanJet 11c/11P..................................$1389/799
- HP DesignJet 600 Piotter/DraftPro DXL/EXL.......$call

Unix-Operating Systems

- SCO/interactive UNIX/ Univel
- XENIX/ UNIX/ OPEN DESKTOP/ OPEN SERVER.
- Multiuser, multi tasking, open-system. Industry standards.
- Support TCP/IP,NFS,IPX/SPX.
- Support MS-DOS Compatible applications.
- Support Multi Processor systems (SCO MPX).

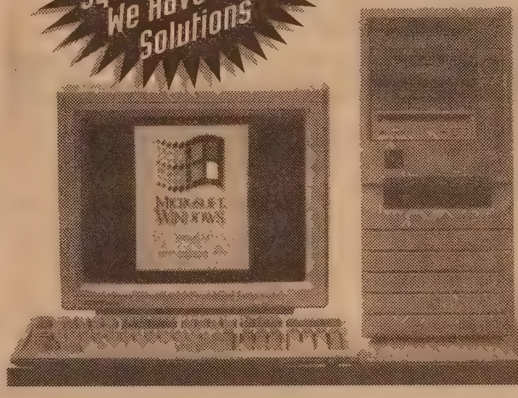
Univel / SCO / SUNSOFT

- Univel SVR 4.2 P.E./ Utilities (CD-ROM)$183/183
- Univel Applications Server............................ $925
- SCO OPEN SERVER (CD-ROM) 16-user.......$1705
- SCO ODT Personal / Server.................. $975/1139
- SCO TCPIP RTS 2 user/unlimited/MPX... $295/475/675
- Sunsoft Interactive Unix SVR3.2.4 Single/Multi.$325/345
- Bundle App./ Network/Wrk/Wrk Dev.....................
  $629/$839/$979/$1895

Computer Associates

- CA-UNICENTER. Best in integrated sys.Management
- UNIX World " best of 1992 Award "
- Computer Associate-Accpac Plus Accounting
- Authorized Consultant and Qualified Installer avail.
- Fully client-server setup or stand alone systems.
- Thousands of vertical market add-in products.
- Supports Novell, Lantastic, OS/2, and more....

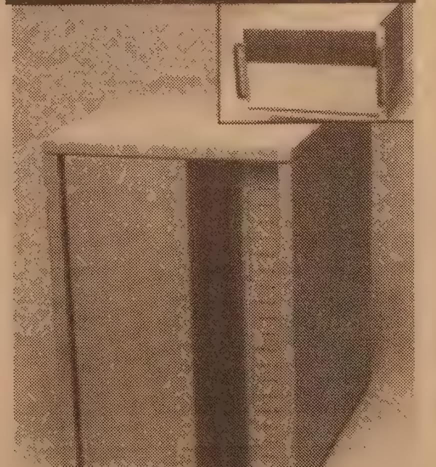
From Server-Client to System Boards, We Have The Solutions



Multi-platform Services

- Free consultation Hot Line
- Best price on Networking peripherals & systems
- Network system design/training
- Modem/Phone/On-Site support
- Data/Voice/Fax Networks
- Hundreds of network applications available
- Scheduled maintenance
- Multi-platform connectivities.

Servers... Workstations...



Novell Specials

- •Novell self-pace courses kits for administrators/ CNE
- •NetwareV3.11(10/20/50)...................$1249/1699/2499
- •NetwareV3.11(100/250usr).........................$3459/6099
- •NetwareV4.00(5/10/25/50).........$876/1999/2949/3949
- •NetwareV4.00(100/250)..............................$5549/9849
- •Multi Protocol Router (IPX,IP,AppleTalk,OSI)....$875
- •LAN Workgroup (5/10/20)..................$1119/1839/2599

Novell Update

- •NetWorth hubs integrates Netware multiportocol router.
- •NFS Gateway - (5/10/50user)............$995/1695/3285
- •DataClub use all peer disk space to from virtual network.
- •Netware SFT III provide mirrored server fault-tolerant system. Best for business-critical servers ...call for info.
- • Netware HosPrint is available now, starting at $495.00
- • Novell Self study kits for CNEs starting at $25.00

Microsoft/Windows NT

- Microsoft LAN Manager...$1495
  provide complete OS/2Server, Netware connectivity, and TCP/IP protocol.
- Microsoft SQL database Server 10 user.............................. $2139
  Runs on LAN Manager, Netware, Banyan VINES, and IBM LAN...
- **WINDOW NT VLB DEVELOPER SYSTEMS are still on special...............call**

High Performance Arena

- VLB caching server Pentium Ready $3489
  486DX33 with 1MB cache and 16Mb Ram.
  VLB 4 IDE/ 2 floppy contri with 4Mb cache.
  500 Mb hard drive and Teac 1.44/1.2 combo drive.
  Mono VGA and 101 enhance keyboard.
- Write your data on network CD-ROM Recorder...$11395
  Record CD can be shard in installed Network for distribution.

CNE's Choice-AXIL

- **The Best SUN SPARC clone HWS-210**
  40MHz SPARC chip microprocessor, 64k cache, 16MB RAM, 535 MB hard drive, 3 SBus slots, 1.44FD and GX Frame 20-inch color monitors....................................$7699.00
- If you are looking for SPARC clone that's design for the technical and commercial user, look no futher! call us to fine out how we can integrate your workstations.

Tech Support Hotline: (408) 227-2287

Tel: (408) 227-2286 • Fax: (408) 227-3086
Corporate/School PO and RFP welcome

ISC Computers & Communications, Inc.

23 Great Oaks Blvd.. Suite E, San Jose, CA 95119
Free initial consultation

need more help, you can call Lotus' 24 hour toll-free product support number. While I appreciate Lotus' attempt to keep things simple, I wish they had also included a more extensive *User's Guide* similar to what comes with the full grown product. I had to call them several times to figure out details that an experienced 1-2-3 user would probably know, but that are not explained anywhere in the provided documentation.

If you have wanted a spreadsheet, but balked at the high price of Lotus 1-2-3, this may be the package for you. While it is a DOS program, it is set up so it can be run as a DOS program from within Windows. Mouse support is also provided. Installation is a breeze, with clear instructions on the inside cover of the user's guide.

COMPUTER OF THE MONTH: Packard Bell 486DX25 Notebook

Packard Bell, while a well-known name in computers, occupies a nearly unique position in that it specializes in products that are turn-key models available through mass merchandisers. Their current offering is just as you might expect: completely ready to go. All you have to do is turn it on; all of the software is loaded. When you turn on the computer, it opens to the Program Manager for Windows 3.1.

The Packard Bell 486DX25 is quite impressive, powered by a 25MHz, 486DX processor. It comes standard with 4MB of RAM, which is expandable to either 8 or 20MB. It also has a double density 3.5" floppy drive and a 120MB hard drive. The notebook weighs 6.8lbs. and measures 8.5" x 11" x 1.7."

This computer opens up to reveal a 9.5" black on white LCD display that supports VGA resolution. If you want a color display, it is easy to connect a VGA monitor of your

EXCELLENCE IN QUALITY & SERVICE

MICRONICS
VESA Local Bus
Truly The First VESA Compatible Local Bus System
486 DX/33 Complete System . . . $1925
486 DX2/50 Complete System . . $2125
486 DX2/66 Complete System . . $2325
Above System Includes:
Micronics Local Bus Video Card w/1MB • 4MB RAM • 120MB Hard Drive • 1.2 & 1.44 Floppy Drives • Non-Interlaced 14' SVGA Monitor • DOS 5.0 • Windows 3.1 • 101 Keyboard • Mouse • Mid-Tower Case • 2 Serial, 1 Parallel & 1 Game Ports
Other Local Bus Systems Also Available

COMPAQ
Prolinea 4/33 120W
• 486-33 • 120MB HD • 4 MB RAM • DOS • Windows • PFS Works • & Mouse
$1625

IBM
AST® RESEARCH INC.
IBM Authorized PS/Value Point Dealer

SCO® THE SANTA CRUZ OPERATION
Authorized Reseller SCO UNIX
We offer complete "Turn-key" multi-user & multi-tasking solutions under SCO UNIX. ISA & EISA systems for 4 to 128 users. Up to 128MB RAM & 34GB hard drive array supported. Multi-processor systems are also available.
We carry a full line of hardware options and software solutions for SCO UNIX.

NOTEBOOKS
We Carry All Brand Names
AST Power Exec 4/80 Color $2999
Compaq Contura 4/120 Color 2650
Samsung Notemaster 486 SLC 2/120 1550
Texas Instruments 486SLC/25 4/80 1750
Toshiba T4500 486SX20 4/120 Color 2225
Twinhead 486DX/33 4/120 2095

486-DX33/50/66 MHZ
120MB Hard Drive Super VGA Systems
•64K Cache
•4MB RAM & 1.44 Floppy Drive
•120MB Hard Drive
•SVGA Non-Int. Monitor, .28 dp
•SVGA Card w/1MB
•2 Serial, 1 Parallel, & 1 Game ports
•Mid Tower case
•Enhanced 101 keyboard
•MS DOS 5.0
$1395/1595/1695

hp HEWLETT PACKARD
PRINTERS
DeskJet 500 .... $395
DeskJet 500C 495
DeskJet 550C 695
LaserJet IIIP 875
LaserJet 4 .... CALL
LaserJet 4M .... CALL

OUR SERVICES & WARRANTY INCLUDE - FREE Needs Analysis - FREE Installation of Software on System purchase - FREE 1 hour data transfer from your existing computer - Lifetime technical support - 5 Year labor, 1 Year Parts Warranty - Complete Turnkey Solutions - On-Site Service Available

(510) 906-1690
Fax (510) 906-1699
1554 Newell Avenue,
Walnut Creek, CA 94596
Hours: M-F 9-6 Sat 11-4

Systems Unlimited

Closed last Saturday of the month • Prices subject to change w/o notice

"A Touch of the Future"

ACR has been helping customers like you since 1981 select a custom configured system designed to fit your needs composed of the newest & finest technology.

For 12 years we have been selling to successful customers such as Intel, IBM, AMD, HP, Panapacific, John Hawkins, Lockheed, Stanford, NASA, Pac-Tel, Japan and much more! Join the Success and let us serve you!

当社は、ここシリコンバレーにて、１０年にわたるＰＣ関係の販売実績を持っております。そして、その顧客にはＩＮＴＥＬ、ＳＣＯ、等の優良企業が多数あり、ＭＳ－ＤＯＳをはじめＮＥＴＷＡＲＥ、ＯＳ／２、ＵＮＩＸ等、各種ソフトウエアの経験も豊富でります。

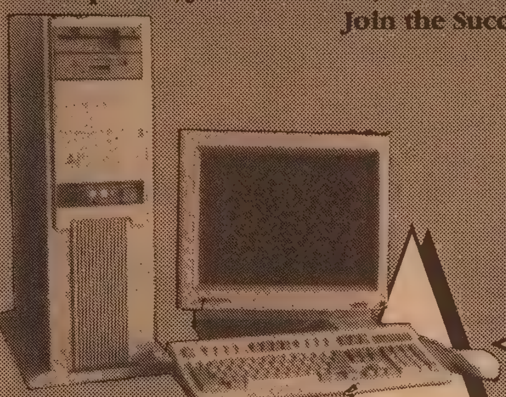
私どもは日本の皆様に対して、ほとんどのクレジットカードをお取り扱いしております。

そして、その距離的なことを考え合わせ、責任の持てる商品質な製品しか販売しておりません。しかし、万一部品保証期間中に故障が発生した場合、その部品を送り返して頂ければ、米国からの返納送料は当社にて負担致します。

部品保証期間　１年間（ハードデスク等の特定部品では、メーカーから５年間の保証期間が提供されているものがありますが、それはそのまま当社から皆様に対する保証期間となります。）

人件費保証期間　５年間（電話、ＦＡＸによる、技術サポートも含みます。）

日本へは空輸業者と専属契約を結んでおり、輸送時の保険も含め１６５ドルでシステム一式（本体、モニター、資料等）を発送しております。（尚、東京、大阪、等の最寄りの空港から最終目的地までの輸送費は、この金額には含まれておりませんので お客様負担になります。）



Why should you buy from ACR?

- ♦ Lowest prices for the highest quality product.
- ♦ 2 Yrs. parts, 5 yrs labor on the Elite 6 Layer Motherboard.
- ♦ Same day service for repairs (in most cases).
- ♦ System supports DOS (others do not), UNIX, XENIX, Windows NT.

Confused with what to buy?
"FREE" Consultation
Just Call!

ISA
486/33/64K
$1149
(Call for EISA)

486/50/64K
$1380
(Call for EISA)

386/33/40/64K
$980

486/66/256K
2 VESA/3 EISA SLOTS
Local Bus
$1599

SPECIAL DEAL

486/33/128K
VESA
$1175

SYSTEM CONFIGURATION

- ♦ Add $50 for 256K Cache
- ♦ 4 MB RAM (Add $120 per 4 MB)
- ♦ 3.5" and 5.25" Teac Floppies
- ♦ 120 MB Hard Drive (add $85 for 212 MB)
- ♦ 2H/2F IDE Control Card
- ♦ 1 Par/2 Ser/1 Game Ports
- ♦ 14" SVGA Monitor
- ♦ 1 MB SVGA Card
- ♦ 101 Enhanced Keyboard
- ♦ Case & Power Supply

COOLER FALLING PRICES!

AMI & MICRONICS MOTHERBOARDS AVAILABLE

HARD DRIVES & CONTROLLERS

(IDE) Maxtor 80MB/17ms	$CALL
(IDE) WD 130/14ms	210
(IDE) Quantum 170MB	299
Western Digital 212/13ms	268
(IDE) Max 340/15ms	CALL
(IDE) Max 130MB/15ms	CALL
(SCSI) Max 130MB/15ms	CALL
(SCSI) Quantum 240MB/15ms	CALL
(SCSI) Fujitsu 330/520/12ms	CALL
(SCSI) Max 1.2GB/13ms	CALL
(SCSI) Future Domain	59
(SCSI) Adaptec 1542B w/Kit	250
VESA Controller I/O	65

MONITOR & VIDEO UPGRADE

ViewSonic 6E/5+	$110/285
Sony 1304S/1604S	330/760
NEC 3FG/4FG	399/500
Nanao 9080i/F550i	739/800
ViewSonic 7/8	839/1239
NEC 5FG/6FG	1050/2350
Sony 1936	2239
Orchid Pro II w/HS	75/85
Diamond Speed Star w/HS	75/85
Genoa VESA	75
Diamond Stealth VA	120
ATI Ultra Pro 2 MB	360
Sampo AlphaScan 14"	180

OPERATING SYSTEM & MICE

MS DOS 6	$50	3 Button	$15
Windows 3.1	40	Logitech First	38
OS/2 2.0	135	Kensington Exp	95
(SCO, PROXIMA, ESIX, SUNSOFT)		Logitech Mouseman	65
		MS Ser/Bus	55/85

MODEMS

2400 Baud	$32
9600/2400 FAX	58
Intel Satis 96/14.4 FAX	CALL
US Robot 96/14.4 FAX	CALL

KEYBOARDS

ST 101 Keyboard	$25
MaxiSw/Keytronic	30/36
Focus 2001/5001	40/68
Omni 101/102/Ultra	68/68/98

SOUND CARDS

Sound Blaster/Pro	90/160
Adlib Pro 16	230
ProAudio Spectrum 16	190

PRINTERS

Panasonic 1124	$280
Epson LQ 570	270
Panasonic 2123	230
HP 500, 500C	CALL
HP IIP+	CALL
HP IIP, III	CALL
HP IV	CALL

CD ROM/TAPE BACK-UP

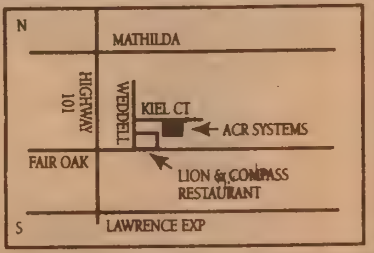
Sony 535/541	$CALL
NEC 74/84	CALL
Color 120/250	180/226
Archiv 250(2153)	469
PANASONIC MULTIMEDIA KIT w/7 CD's	450
Mitsumi MULTIMEDIA KIT w/7 CD's	375

ACR SYSTEMS
1038 Kiel Ct.
Sunnyvale, CA 94089

(408) 734-9795
Fax: (408) 734-9798

Mon-Fri 9am-6pm Saturday 10am-5pm

Prices subject to change without notice.



RESOURCES:

Packard Bell
486DX25 Notebook,
$2099
Packard Bell Corp.
9425 Canoga Ave.
Chatsworth, CA 91311
(818)886-4600

choice to the port on the back of the unit.

The keyboard gets the job done, but is not as nice as some of the other portables that I have reviewed in these pages. My complaint is pretty standard. A Function key is required to invoke PgUp, PgDn, Home, and End. For a typist this is inconvenient. The rest of the keyboard layout is fine. Fortunately, you are able to connect a keyboard of your choice through the port on the back.

Packard Bell has designed the ports on the back to so that you can attach both the included mouse and a keyboard. Some less well-designed machines make you choose which you want as they provide only one port.

When I asked Packard Bell for a list of accessories, they replied that they had included everything with the unit. It seems like they have. A 2400 baud modem is included that also serves as a 9600 baud send-only fax. Software for sending faxes is, of course, included. I understand the need to cut costs, but am a bit disappointed with the send-only fax as I find receiving faxes nearly as important as sending them. To get around this limitation, I suppose you would have to use a standalone fax/modem attached through the serial port.

Packard Bell's current offering is just as you might expect: completely ready to go.

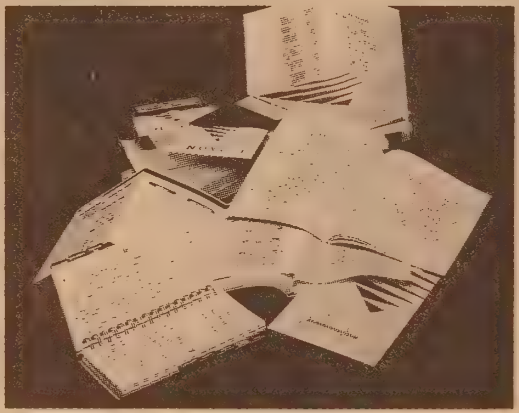
All you have to do is turn it on.

The battery pack included is Nickel Metal Hydride. It will run for at least two and a half hours with no power management features invoked. If you conserve power through the use of power management you may get as much as four hours of use between recharges.

The software that comes loaded on the machine includes enough to really get you on your way. MS-DOS 5.0 is the operating system. Windows 3.1 lets you navigate through your programs. Finally, Packard Bell has bundled a variety of applications from Lotus. Lotus Write for Windows is provided for the word processor. While this is not quite as feature-filled as Ami Pro, it is certainly adequate. 1-2-3 for Windows for Packard Bell is provided for a spreadsheet. This, likewise, is adequate for most users. WinFax lets you send faxes.

Packard Bell has produced a good notebook computer. In addition to the hardware and software, there is a one year warranty and excellent product support. They offer 24 hour a day live technical support as well as support through CompuServe, Prodigy, and their own bulletin board system. ■

FREE ADVICE IS WORTH EXACTLY WHAT YOU PAY FOR IT.



FREE ADVICE

GOOD ADVICE

How many times have you heard it... "We'll even throw in free training" or "Of course, training is included, free." Ya, sure, right. You'll believe it when you see it. Your mom didn't raise any fools. Let's face it - getting the proper training is just as important as getting the proper hardware or software. That's why you should choose the leader in operating systems training, Evernet Education Services. Evernet Education is the most highly respected national LAN training company. Why? One reason is that we are part of Evernet Systems, Inc. - the nation's largest network systems integrator. So you know you are getting instructors who bring the experience gained in thousands of successful installations into classrooms furnished with the finest equipment available. Call Evernet today for all the details on the great new things that are coming up this year.

GUARANTEED EVERNET SATISFACTION

We're so sure that you will get the finest training anywhere, we offer this guarantee on all of our courses. If an Evernet student fails to pass any of the certification testing, we welcome them back to review the appropriate course at no additional cost.

Novell Authorized Education Center

CALL TODAY 1-800-447-3658

EVERNET
EDUCATION SERVICES
Los Angeles • San Francisco • Sacramento • Houston • Chicago

JDR Microdevices' Catalog Outlet would like to thank all who took advantage of our great values during our annual Sidewalk Sale. Don't miss our 10th Annual Fall Sale!

June Special of the Month

Automatic Printer Switch switches between 2 PCs & 1 parallel printer - automatically! **$14.95**

MODULAR CIRCUIT TECHNOLOGY

MOTHERBOARDS

33MHz 386SX	64Kb Cache	$139.95
40MHz 386DX	64Kb Cache	$229.95
25MHz 486SX	64Kb Cache	$349.95
33MHz 486DX	64Kb Cache	$529.95
50MHz 486DX	64Kb Cache	$749.95
VESA Comp. Local Bus Boards		
33MHz 486DX	128Kb Cache	$549.95
66MHz 486DX	128Kb Cache	$799.95

CONNER

IDE HARD DRIVES

CP-30084	84Mb 19ms	$189.95
CP-30104	120Mb 19ms	$209.95
CP-30204	210Mb 12ms	$319.95
CP-30544	544Mb 10ms	$849.95

EPSON

WHEN YOU'VE GOT AN EPSON,
YOU'VE GOT A LOT OF COMPANY.™

STYLUS 800

Desktop Inkjet Printer

- ***FAST 150cps / 4 Scalable Fonts***
- ***360 x 360 DPI max. resolution***
- ***Laser-quality at half the price***
- ***EPSON's Two-Year Warranty!!!***

NEW! **$349.95**

Serving you since 1979

JDR Microdevices®

Computer Systems

486SX/25	w/ 4Mb RAM & 120Mb IDE	$1399
486DX/33	w/ 4Mb RAM & 210Mb IDE	$1699
486DX/50	w/ 4Mb RAM & 210Mb IDE	$1899
486DX/66	w/ 4Mb RAM & 210Mb IDE	$1999

All JDR Computer Systems include: Desktop Case with 200W Power Supply, Teac 1.2Mb & 1.44Mb FDDs, 1 Par/1Game/2 Ser ports, SVGA Graphics with 14" Non-Interlaced Monitor, BTC Enhanced Keyboard, 3-button Serial Mouse and MS-DOS 6 & Windows 3.1!

MultiMedia Package with CD-ROM Drive, Sound Card & Software

Includes 350ms Kodak PhotoCD compatible CD-ROM drive and interface card, SoundBlaster & AdLib compatible sound card, two shielded speakers, joystick and a CD-ROM w/ dictionary, thesaurus, writing guide, New York Library Desk Reference and much more...

$349.95

FREE INSTALLATION WITH THIS AD!

"Access" software for PhotoCDs - $29.95

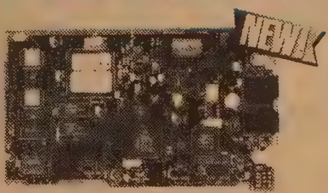
EPSON

WHEN YOU'VE GOT AN EPSON,
YOU'VE GOT A LOT OF COMPANY.™

LX-810	9-pin Dot Matrix	$169.95
FX-870	9-pin Dot Matrix	$279.95
FX-1170	9-pin Dot Matrix	$359.95
LQ-570	24-pin Dot Matrix	$234.95
LQ-1070	24-pin Dot Matrix	$349.95
LQ-870	24-pin Dot Matrix	$429.95
LQ-1170	24-pin Dot Matrix	$579.95
LQ-2550	24-pin Dot Matrix	$869.95
STYLUS-800	Desktop Inkjet	$349.95
ActionLaser1000	6ppm w/512K	$649.95
ActionLaser1500	6ppm w/1Meg	$699.95

MODULAR CIRCUIT TECHNOLOGY

Internal 14.4Kbps Fax/Modem



- 14,400, 12,000, 9600, 4800, and 2400 baud compatibility for fax and modem
- Internal switch for COM1-4 and IRQ2-5
- MNP1-5, CCITT V.42bis, V.42, V.32bis, V.32, V.22bis, V.22, V.21 & GPIII faxing
- Incl. QuicklinkII Fax/Modem software
- Fax/modem using 16550 UART - $219.95

Serving you since 1979

JDR Microdevices®

Project Design Series

Solderless Breadboards:

PDS-100	1260 tie points / 2 bind posts	$11.95
PDS-200	1260 tie points / 3 bind posts	$17.95
PDS-300	1890 tie points / 4 bind posts	$22.95
PDS-400	2520 tie points / 4 bind posts	$31.95
PDS-500	includes 20 watt power supply	$89.95

Prototyping Cards:

JDR-PR2	8-bit card w/ decoding layout	$29.95
JDR-PR10	16-bit card w/decoding layout	$34.95
EXT-80286	16-bit ISA extender card	$39.95

Bargain Hunters' *Specials*

4-Drive HD Floppy Contr.	*regularly $49.95*	$19.95
33MHz 386DX Board w/CPU	*regularly $229.95*	$149.95
33MHz 486DX Board (VLB)	*regularly $549.95*	$399.95
2400bps Ext. Modem	*Special Offer / Ltd. Quantities*	$39.95
Teac 1.2/1.44Mb Combo FDD	*regularly $139.95*	$99.95
25MHz 386SL Notebook w/4Mb	*"Special"*	$1299.95
WD1003 MFM HDD Controller	*"Special"*	$9.95
Epson LQ2550 24-pin	*regularly $879.95*	$699.95

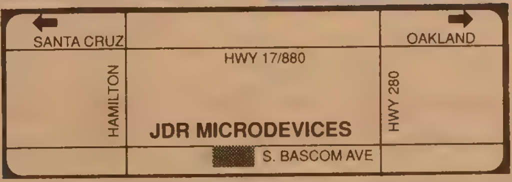
All Bargain Hunters' items are limited to stock on hand and are covered by our standard warranty; 30-day money-back guarantee and one-year warranty. All items listed above are Catalog Returns that have been tested and are in good working order. There are many Bargain Hunters' items not listed and stock in this area is constantly being updated. Check out the latest bargain specials today!

Serving you since 1979

JDR Microdevices®

CATALOG OUTLET

1238 South Bascom Avenue
San Jose, CA 95128 408-559-7724 Fax: 408-947-8234



Prices good through 6/30/93 at this location only.

30-day Money-Back Guarantee and 1-Year Warranty!!!

While Supplies Last!

Clearance Sale

Apple® Macintosh® Color Classic® computer.
The Complete Color Package.

- Displays up to 256 colors on a built-in Trinitron® screen
- 4 MB of RAM, expandable to 10 MB
- Built in LocalTalk® connection
- AppleTalk® networking software
- Easy to transport
- A member of the Classic Macintosh product line

Trinitron® is a registered trademark of Sony Corporation

4 MB RAM/80 MB HD
$1269

We carry the full range of Apple® Products

Apple® Macintosh®
The Power To Be Your Best®

Authorized Reseller

Macintosh Quadra 800
Macintosh Centris 650
Macintosh Centris 610
Macintosh LC III
Macintosh PowerBook 165c

Apple® Macintosh Quadra™ 800 computer. Maximum performance in a compact design.

Apple® Macintosh Centris™ 650 computer. High performance. Maximum flexibility.

Apple® Macintosh Centris™ 610 computer. Exceptional processing power at an affordable price.

Apple® Macintosh® LCIII computer. The powerful choice for education or business.

Apple® Macintosh® PowerBook™ 165c computer. Color and power in a notebook computer.

Computown is not responsible for typographical errors. Specifications are subject to change without notice. Apple, the Apple logo are registered trademarks of Apple Computer, Inc. Classic is a registered trademark licensed to Apple Computer, Inc. PowerBook, Macintosh Quadra, Macintosh Centris and PowerBook Duo are non-registered trademarks of Apple Computer, Inc.

San Francisco
CORPORATE SALES
760 Market Street, 2nd Floor
Mon-Fri 8-6, Sat 10-4
Tel (415) 956 1777
Fax (415) 989 8696

San Francisco
RETAIL SALES
756 Market Street
Mon-Fri 9-7, Sat & Sun 10-4
Tel (415) 956 8696
Fax (415) 956 5548

Mountain View
2444-A Old Middlefield Way
Mon-Fri 8-6, Sat 11-4
Tel (415) 962 8696
Fax (415) 969 8696

T4500 Series

T4500C & T4500
i486SX / 25 MHz
4 MB RAM
120 MB HD
Active color screen

CALL

TOSHIBA

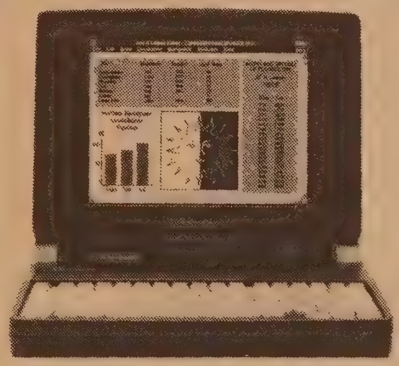
NEW

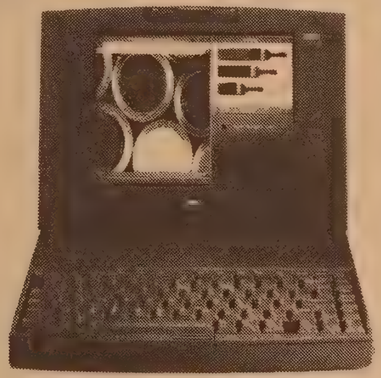
TOSHIBA

Satellite T1850 /1850c
i386SX /25 MHz
4 MB RAM/80 or 120 MB HD
(Bundle includes MS Windows 3.1, DOS 5.0, Ultrafont, Trackball, Instructional Video worth $300 MSRP) Available in mono and color

Reduced Pricing

NEW





AST® Authorized System Reseller

PowerExec™ 3/25 SL
Intel 386 SL Processor
4 MB RAM
60, 80, 120
or 160 MB HD

CALL

COMPAQ

COMPAQ CONTURA 425
486SL / 25 MHz
Available in
Mono, Passive &
Active Color.

CALL

NEC

NEC UltraLite® VERSA™
i486SL / 20 or 25 MHz
4 MB RAM up to 12 MB
80 MB, 120 MB HD
Color and Mono models
available.

CALL

NEW

TI'S NEW TRAVELMATE 486 NOTEBOOK COMPUTERS OUTSTANDING VALUE, NO MATTER WHICH MODEL YOU CHOOSE.

The new TravelMate 486 color notebook computers give you high performance, outstanding valuer and vibrant colors - up to 256 colors on a large 9.4" diagonal display. All 256 colors are displayed at full VGA 640 x 480 resolution.

TI TravelMate color notebooks offer you two selections. Choose from the super-fast TM 40 MHz color model with 8 MB of memory and a 200 MB HD, or the TM 4000 Win SX 25 MHz color model with 4 MB of memory and 120 MB HD.

- **TravelMate 4000 Win SX™/25**
- **TravelMate 4000 Win DX™/25**
- **TravelMate 4000 Win SX2™/50**
- **TravelMate 4000 Win SX™/25 COLOR**

CALL

TEXAS INSTRUMENTS

The World of Notebooks

leasant Hill
525 Contra Costa Blvd.
on-Fri 9-6, Sat 10-4
el (510) 682 8696
ax (510) 689 8696

San Jose
780 Montague Expressway, #701
Mon-Fri 8-6, Sat 11-4
Tel (408) 275 8696
Fax (408) 297 8696

Computown

Reflects cash prices only Not responsible for typographical error. Specifications are subject to change without notice.AST, AST logo, PowerExec, Easy Port, Smart Port are registered trademarks of AST Research, Inc. NEC and UltraLite, UltraLite Versa are registered trademarks of NEC Corporation. All other marks are trademarks or registeredtrademarks of the products with which the marks are associated.

YOUR CONNECTIVITY SPECIALIST

CALL FOR FREE ON-SITE CONSULTATION

CALL US FIRST BEFORE YOU DECIDE ON A NETWORK!

FREE ON-SITE CONSULTATION

NETWORKING

SALES
INSTALLATION
ON-SITE SERVICE

NETWORK SOLUTION

NETWORK SYSTEMS

5 USER	$7995
10 USER	12,990
20 USER	19,960
50 USER	CALL
100 USER	CALL
250 USER	CALL

WORKSTATION 386-DX33 W/64K CACHE

- 4 MB RAM 70ns
- VGA 256K Card
- 14" VGA Monitor
- 101 Keyboard
- 1.2 or 1.44 Floppy
- Desktop/Mini Tower
- Network Cable
- 2S/1P/1 Game Ports
- 16-Bit Ethernet Card

CALL FOR INFORMATION

SERVER/WORKSTATION 486-50 W/256K CACHE

- 16 MB RAM 60ns
- 500 MB Hard Disk
- 16-Bit Ethernet Card
- 14" Mono Monitor
- Mono Card
- 101 Keyboard
- 2S/1P/1 Game Ports
- 250 MB Tape Back-Up
- Novell Installed

CALL FOR INFORMATION

NOVELL NETWORK SOFTWARE

NOVELL 2.2		NOVELL 3.11	
5 User	$549	5 User	$629
10 User	1149	10 User	1429
50 User	1949	20 User	1998

CALL FOR 50-250 USERS LOW PRICES!!
CALL FOR NOVELL UPGRADES 3.11 W/4.0 OPTIONS

NETWORKING PRODUCTS

LANTASTIC/NETWARE LITE Peer-To-Peer....CALL

8 Bit NE1000	$89	UPS 400W	$199
16 Bit NE2000	109	UPS 600W	269
10 Base T 16 Bit	119	UPS 900W	599
10 Base T 8 Bit	109	Tape Back-up 120MB	229

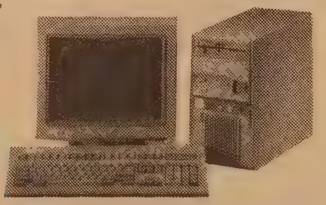
CALL FOR OTHER NETWORK PRODUCTS

LIFETIME WARRANTY ON LABOR & 2 YEARS PARTS WARRANTY

386-40 w/64K CACHE

- 4 MB RAM 70ns
- 120 MB Hard Drive
- 1.2 & 1.44 MB Floppy Drives
- Mini-Tower Case
- SVGA 1 MB Card
- SVGA Monitor .28dp
- 2 Serial, 1 Parallel, 1 Game Ports
- 101 Keyboard
- DOS 6

Only $40 A Month



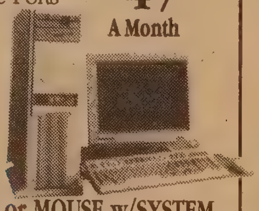
$999

FREE BAY AREA DELIVERY or MOUSE w/SYSTEM

486-33/50 w/256K CACHE

- 4 MB RAM 70ns
- 120 MB Hard Drive
- 1.2 & 1.44 MB Floppy Drives
- Mini-Tower Case
- SVGA 1 MB Card
- SVGA Monitor .28dp
- Local Bus Slot
- 2 Serial, 1 Parallel, 1 Game Ports
- 101 Keyboard
- DOS 6

$1299 33 MHz Only $47 A Month



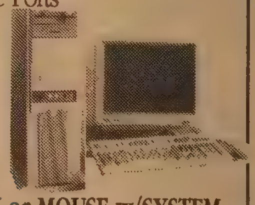
$1399 50 MHz Only $50 A Month

FREE BAY AREA DELIVERY or MOUSE w/SYSTEM

486-66 DX2 w/256K CACHE EISA

- 4 MB RAM 70ns
- 200 MB Hard Drive
- 1.2 & 1.44 MB Floppy Drives
- Full-Tower Case
- SVGA 1 MB Card
- SVGA Monitor .28dp
- Local Bus Slot
- 2 Serial, 1 Parallel, 1 Game Ports
- 101 Keyboard
- DOS 6

Only $64 A Month



$1795

FREE BAY AREA DELIVERY or MOUSE w/SYSTEM

THESE SYSTEMS MADE WITH U.S. MADE MOTHERBOARDS!

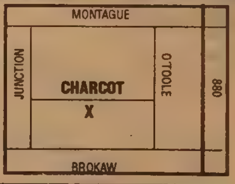
EMI
EMI INTERNATIONAL

732 CHARCOT AVE., SAN JOSE, CA
(408) 321-9101
FAX:(408) 321-9104

90 DAYS SAME AS CASH
FINANCING AVAILABLE

HOURS:
MON-FRI: 8-6 SAT:10-4
PRICE SUBJECT TO CHANGE W/O NOTICE

VISA
MasterCard



Forming A Corporation or Partnership

Do-It-Yourself Software Designed To Help You Incorporate, Form A Partnership, And Register Your Company's Securities For Private Sale To Investors.

By David A. Simon, CPA and Jennifer Robin Cherniss

Today's climate of corporate downsizing and layoffs has led to huge numbers of small businesses sprouting in California. This is the silver lining around our current economic cloud, not only because of the diversification it brings, but because each new entity is a potential client for us CPAs

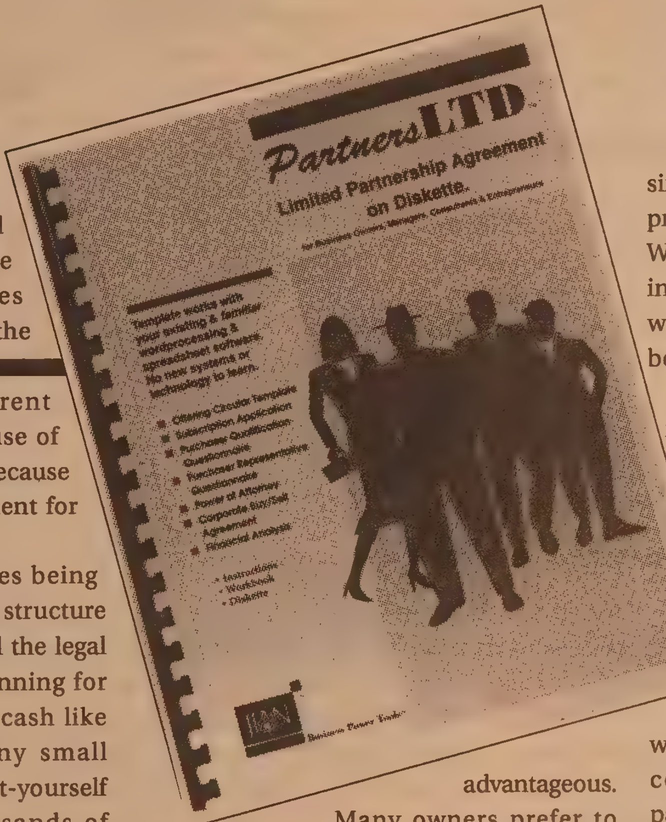
With legal and accounting fees being what they are, selecting the best structure for your business, customizing all the legal instruments to form it, and planning for taxes can eat away at start-up cash like snails in newborn basil. Many small business owners choose the do-it-yourself path in hopes of saving thousands of dollars in such fees.

This article looks at four do-it-yourself business formation PC software packages designed to help you incorporate, form a partnership, and register your company's securities for private sale to investors.

Nolo Press, the venerable maker of self-help legal products, offers California Incorporator. The software aims to provide everything necessary to form a corporation in California, including customizable documentation, articles of incorporation, bylaws, and minutes of the first meeting (haven't figured out why they didn't include coffee and donuts for that first meeting).

Once you incorporate, you may wish to sell stock to fund your business venture. P.P. Memo from JIAN generates investment offering documents and is designed to meet the legal requirements for a private placement memorandum in many states, including California.

Forming a new business with others doesn't necessarily mean incorporating, and the corporate form isn't always the most advantageous.



PartnersLTD
Limited Partnership Agreement on Diskette.
for Business Owners, Managers, Consultants & Entrepreneurs
Template works with your existing & familiar wordprocessing & spreadsheet software. No new systems or technology to learn.
Offering Circular Template
Subscription Application
Purchaser Qualification Questionnaire
Purchaser Representative Questionnaire
Power of Attorney
Corporate Buy/Sell Agreement
Financial Analysis
Instructions
Workbook
Diskette
JIAN
Business Power Tools

Many owners prefer to conduct their business as a partnership. Both Nolo Press's Partnership Maker and JIAN's Partners LTD are designed to prepare partnership agreements that are valid in any state.

Partnership Maker is for general partnerships, in which all partners are personally liable for business losses or debts. Partnership LTD is for setting up limited partnerships.

A limited partnership is a legal entity combining attributes of a partnership and a corporation. Limited partners have no management powers, but neither are they personally liable for the debts of the partnership. Forming a limited partnership is more complicated and costly than forming a general partnership.

Nolo Press and JIAN have taken different approaches in designing their software. Nolo's products prompt the user for a response, then generate forms based upon the responses. JIAN, on the other hand, takes the template approach. Rather than generating your forms interactively, you simply call up the templates using a word processor such as WordPerfect or Microsoft Word and type your business-specific information over the existing text. In this way, using JIAN is more like using a forms book.

The JIAN programs require practically no time to learn, assuming you're familiar with your word processor, since they are merely templates that you edit. The two Nolo packages use different interfaces. Partnership Maker seemed more intuitive and modern to me than did California Incorporator.

If you wish to use do-it-yourself software, you'll first need to decide what type of entity to create; e.g., corporation, partnership, or limited partnership.

Aye, but there's the rub.

Or perhaps, the first of many. Deciding whether to form a corporation or partnership can be difficult. The decision should be based upon legal and tax considerations, as well as an understanding of business practices and sometimes the individuals and relationships involved. You'll need to do some planning, perhaps sophisticated planning. Software selection is virtually an afterthought.

KNOW YOUR STORY BEFORE YOU WRITE IT

While some tax considerations pertaining to business formations are fairly straightforward, others are not. For example, if you later sell or liquidate the business, there are dramatically different tax differences between corporations and partnerships. Similarly, the rules effecting the tax treatment of buy-sell agreements (where the remaining owners acquire the interests of deceased or departing owners) depend upon the form in which the

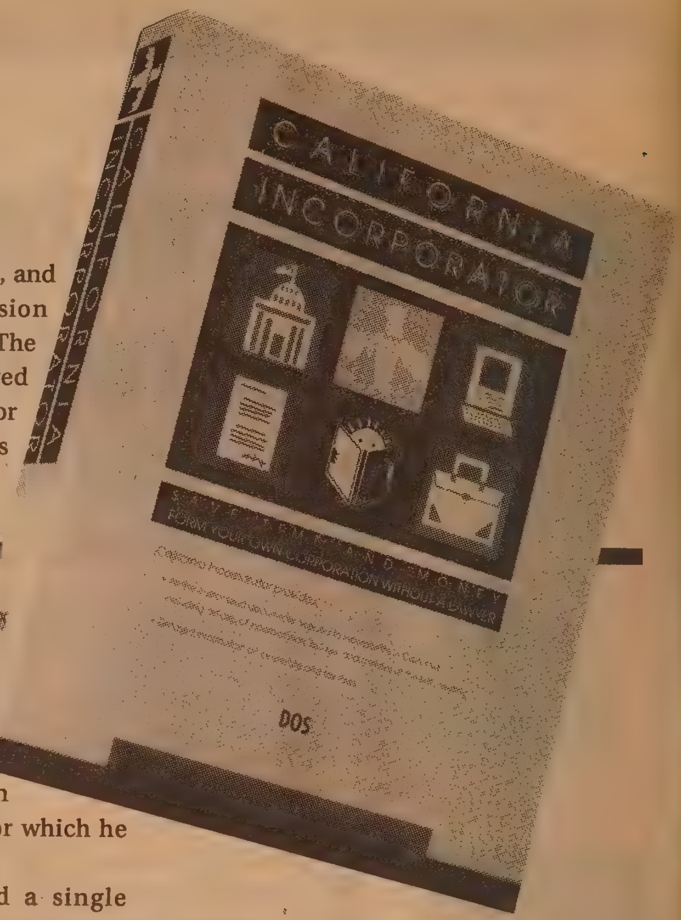
RESOURCES:

David A. Simon
Certified Public Accountant
Oakland, CA
(510)893-5753

Steve Pezzola and Don Reinke
Pezzola and Reinke Attorneys at Law
Oakland, CA
(510)839-1350

California Incorporator, $129
Partnership Maker, $129.95
Nolo Press
950 Parker St.
Berkeley, CA 94710
(510)549-1976

Copyright © 1993 by David Simon. All rights reserved. David A. Simon, CPA (M.S., Taxation), is in tax and accounting practice in Oakland and writes on a variety of business issues. His clients include professionals and businesses throughout the state. He can be reached at (510)893-5753. Jennifer R. Cherniss is a free-lance writer based in Berkeley.



business is conducted. Often alternative minimum tax and estate planning considerations must be taken into account.

Many smaller businesses that are incorporating for non-tax reasons elect (if eligible) to be treated as partnerships for tax purposes, thereby generally avoiding corporate income taxes. This is known as an S election. There are nevertheless many distinctions between the tax treatment of partnerships and of S corporations. And harsh tax consequences can follow if an S election is terminated because the corporation no longer qualifies for it.

RESOURCES:

P.P. Memo, $195
Partners LTD, $195
JIAN Business Power Tools
127 Second St.
Los Altos, CA 94022
(415)941-9191

GOOD DOCUMENTATION IS NO PANACEA

All four software packages considered in this article include documentation providing a good overview of the legal and tax implications of your decisions. This is surely worthwhile reading, although maybe not as riveting as your average space detective suspense thriller. Nolo's packages, in addition, include extensive online help.

You cannot, however, expect to become an expert in the field simply by reading a book or two—and mistakes can be both irrevocable and costly. The following example illustrates one of the hidden potholes on the self-driven road to tax happiness.

> **All four software packages considered in this article include documentation providing a good overview of the legal and tax implications of your decisions.**

I recently liquidated a corporation for a client who originally set it up using California Incorporator. He saved substantial legal fees by doing it himself, the corporate papers looked exquisite, and the minutes were immaculate. The client says he invested a great deal of time learning the laws and ensuring that all the requirements were met to avoid triggering a taxable event upon transferring property to the corporation. He weighed many of the tax advantages and disadvantages of incorporating, and indeed made a prudent decision given his particular situation. The corporation issued one hundred shares of voting stock to him, for which his tax basis was $100,000.

This client then gave a sizable portion of these shares to his children, free of gift taxes, so that future earnings and appreciation would be excluded from his estate on death.

Unfortunately, the corporation went belly-up—an outcome for which he had failed to provide.

My client had overlooked a single sentence in Nolo's rather thick book regarding certain qualified stock losses: "Note: ordinary loss treatment for the stock loss is only available to the original owner of the stock." The children should rather have been issued original shares. This pitfall resulted in a serious loss of tax benefits.

A LEGAL VIEW

The book for California Incorporator states, "The basic premise of this program is that it is usually not necessary for you to pay a lawyer $1,000 to $2,000 or more to prepare standard California incorporation forms and to make routine filings with the state." Among Partnership Maker's promotional claims is, "Save thousands in legal fees." Ultimately, you must decide whether or not you agree.

Steve Pezzola, an Oakland attorney with Pezzola & Reinke, examined both California Incorporator and Partnership Maker and believes Nolo's premise is flawed. "It would be hard to argue against the forms," he states, "But there may be a problem with people using them without enough experience to know when they need help."

"The software doesn't approach practical issues, like 'How do other people in my situation handle this?'" Mr. Pezzola explains. "People are so accustomed to reading disclaimers on packages that they tend to discount them. Some people assume that lawyers just shake your hand and have the paralegal crank out a form on the word processor. It's easy to conclude that forming a corporation is something any college grad can do on a home computer, but there's really much more to it. And when more than one person is involved with the corporation or partnership, the potential to make a really serious mistake increases."

Mr. Pezzola continues, "We charge $1,250 for soup-to-nuts incorporation. I talk with the clients, examine their needs, and tailor the documents carefully. To suggest you're paying thousands for a printout of routine filings is grossly misleading. It's far more fair to say clients pay for advice and counsel, and that the filings are free."

In recent *MicroTimes* articles, I've reviewed do-it-yourself software for income tax preparation and for estate planning (complimentary reprints of either are available from my office, 510/893-5753). In each case, as in this, care is taken to distinguish the value of generating good computer output, be it tax returns or trusts, from the value of professional counsel.

With do-it-yourself software, you must consider the time you'll need to spend learning applicable law, the money you may be saving, and the risk that may be involved in skipping professional advice. One indicator of the amount of risk is the amount of money involved in your business.

STOCKS AND BONDS

Ordinarily, issuances of debt or equity securities must be registered with the Securities and Exchange Commission. Under various S.E.C. rules, a qualified private placement is exempt from federal registration. The purpose of P.P. Memo is to generate an Offering Circular to raise equity capital up to $1 million—a breakoff point under which many entities may qualify for exemption.

Many states, including California, have enacted SCOR (Small Corporation Offering Registration) legislation. If you register your

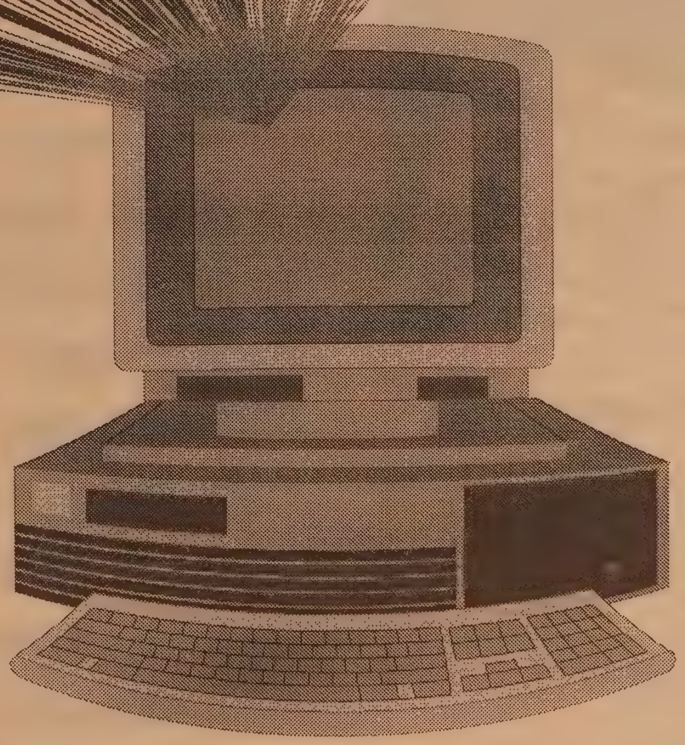
Monitors

Networks

Plotters

(408)263-8500

ONSITE Service & Repair



FREE LOANERS

Maintenance Contracts

Rentals Available

We Service

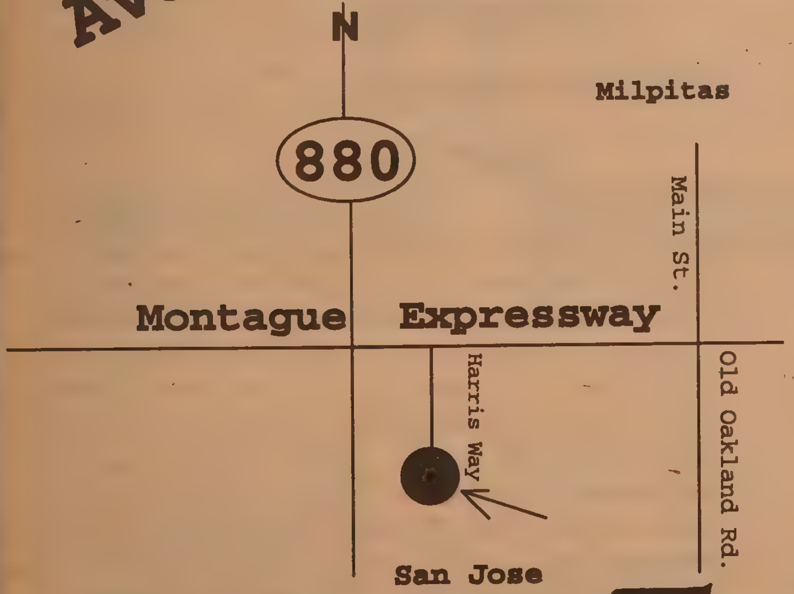
SYSTEMS:
All Clones
IBM (AT/PS2)
Compaq
HP, DEC, SUN
AT&T, ALR
AST, Everex
ALL MAC's/Apples

PRINTERS:
All Dot Matrix
All Laser Printers

MONITORS:
All EGA, VGA, SVGA

PLOTTERS:
H.P. (All models)

NETWORKS:
Novell
MS for Workgroups
LANtastic


N
Milpitas
880
Main St.
Montague
Expressway
Harris Way
Old Oakland Rd.
San Jose

Please Call
(408)263-8500

Store Hours
Mon-Fri 8:00-6:00
Sat. 10:00-3:00
Sun. Closed

* * *

Corporate P.O.'s, C.C.'s & checks are always welcome.

FAX# (408)434-0551

Clip Coupon

JUNE Special

$ 50.00* FLAT-RATE LABOR

on ALL REPAIRS

* PARTS extra, if needed.

CompuTask

YOUR COMPUTER MAINTENANCE COMPANY

2340 Harris Way, San Jose, CA 95131

MIS®
SERVICES
"Service That's Second to None"

UNIX SYSTEM LABORATORIES Licensed Education Center

TRAINING SCHEDULE

IBM OS/2 LAN SERVER 3.0 Training

(Please call for Scheduling and Reservations)

(800) 300-4 M.I.S.

Announcing our CNE PACKAGE:

- Network Fundamentals
- Administration for Netware 3.x
- Advanced Admin. for Netware 3.x
- Data-Com Technologies
- Tech Support for Netware
- Elective #1
- Elective #2

Spring Special ~~$3,995.00~~ *$3,495.00 *when prepaid by 6/9/93

June

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	1 400	2 400	3 401	4 401	5	6
7 500A	8 500A/B	9 500B	10 501	11 501	12	13
14 100, 201 102	15 101 102	16 101 102	17 102 102	18 102	19 260	20
21 103 103	22 103 103	23 105 103	24 230 103	25 230	26	27
28 400	29 400	30 401				

July

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
			1 401	2 401	3	4
5	6 500A	7 500B	8 501	9 501	10	11
12 100/201 105	13 101 105	14 101 109	15 102 109	16 102 109	17	18
19 400	20 400	21 401	22 401	23 401	24	25
26 103 100	27 103 101	28 105 101	29 109 101	30 109 101	31	

Day Classes: 8:30 a.m. – Noon, LUNCH, 1:30 p.m. – 5:00 p.m.
Evening Classes: Call for Course Schedule and Time

TRAINING on 486/50's

Centrally Located at 12th Street/City Center **BART Station**

MIS Services, Inc. • 436 Fourteenth St., Suite 1030, Oakland, CA, 94612 • (510) 208-5700

offering at the state level, you may now use preprinted forms somewhat analogous to JIAN's word processor template but no computerized.

P.P. Memo's book cover announces that the package, "Is the resul of combining years of experience into a simplified form to alleviat mistakes and speed the process of obtaining capital." One endorse quoted on the back jacket further states, "I know I saved at leas $10,000 using this package."

With do-it-yourself software, you must consider the time you'll need to spend learning applicable law, the money you may be saving, and the risk that may be involved in skipping professional advice.

But Don Reinke, also of Pezzola and Reinke, comments, "I don believe the savings would b nearly that high. It doesn replace 90% of the work th attorney ought to be doin when undertaking an offering Drafting a prospectus mean more than filling in the blanks There's business planning, dea structuring, and coordinatio of various security law issues."

"On the other hand, it's good organizational tool," h concedes. A client can reduc the attorney's billable hours "b preparing the information b category that will be presente in your offering prospectus And, it makes a positiv difference when the clien understands the issues an steps involved. The materia does a good job of informin and educating about frequent encountered security la issues."

Mr. Reinke also observes tha JIAN's materials need to b updated to reflect severa significant changes to S.E.C Rule 504, regarding certai offerings under $1 million.

As to Partners LTD, Mr Reinke says, "I'm a corporat finance attorney. Whenever I do a partnership offering I still see independent counsel from a tax attorney as well as the client' accountant, to ensure proper structuring of the partnership."

Tax laws pertaining to partnerships are constantly changing an can be perversely complex, especially for limited partnerships Even some tax specialists in the fields of law and accounting fin the rules dealing with partnership allocations difficult t comprehend. I'm currently preparing, as coauthor, the tax analysi sections of *Business Contract Forms and Tax Analysis* (fo publication by Wiley Law Publications, Spring, 1994) and will gladl send a complimentary draft of the chapter dealing with purchas and sale of a business to anyone desiring to learn more.

The good news is that many partnerships never face most of th complex issues; from a tax standpoint, they are indeed simpl enough to form with do-it-yourself packages. There is even cas authority that certain Mom and Pop "casual partnerships" aren required to file an income tax return at all.

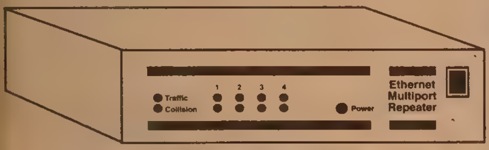
You need to determine where in the spectrum you fit, an whether doing it yourself is the best that you can do. ■

TANSTAAFL

DIFFICULT TO SAY - EASY TO USE - ECONOMICAL TO BUY

SINCE 1978

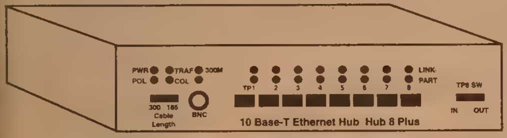
NETWORKING



REPEATERS

Ethernet Repeaters
- BNC and AUI connectors for each port.
- Activity and Partition indicators for each port.
- Automatic preamble generation.
- Auto partitioning on Net failure.
- Traffic and collision indicators.

#ETMPR2 2 port repeater —$379
#ETMPR4 4 port repeater —$549



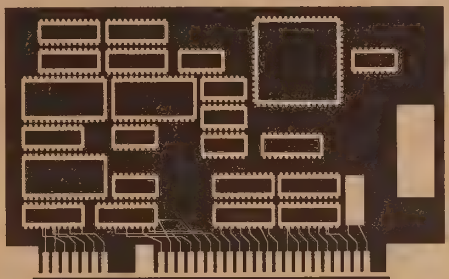
HUBS

9 Port Concentrator
- 8 UTP ports, 1 BNC port.
- Full diagnostic LED's for link integrity, Partition, Activity, Collision, Reverse Polarity, and BNC 300M.
- Supports 185 and 300 Meter Thin Coax.
- Low Cost!

ER6390 Sale Priced @ -$299

14 Port Concentrator
- 12UTP, 1 BNC, 1 AUI ports (10 Base 2/5T)
- Status LED's for traffic, collision, fifo error, MAU lockup, partition, and twisted pair link.
- Rack mountable.
- Crossover UTP port for linking to other Hubs.

#HUB-II Sale Priced @ -$595
#ER6391 ——————$495
same as above W/O cross over



PC INTERFACE CARDS

8 Bit 10 Base T
- Novell NE1000 compatible
- Multi Packet Buffer
- Very low cost

#1000T on Sale @ ———$69

8 Bit Coax
- Novell NE1000 compatible
- BNC and AUI connectors
- 8K Multi Packet Buffer

#1000C on Sale @ ———$69

16 Bit 10Base T
- ***NOVELL LAB CERTIFIED***
- Novell NE2000 Compatible
- Status LED's and lots more

#2000T on Sale @ ———$79

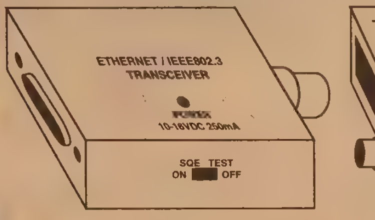
16 Bit Coax
- Netware, PC/tcp,PC-NFS, NCSA, NDIS Compatible
- ***NOVELL LAB CERTIFIED***
- BNC and Coax connectors

#2000C on Sale @ ———$79

LOW COST INTERFACE CARDS

32Bit VESA LOCAL BUS COMBO
- BNC, VTP, AVI
- 50MHz SPEED LOCAL BUS IT SCREAMS!
- INTEL 82586 CA Controller
- Netware ODI, SCO, UNIX & NDIS drives

Priced well below market value——$379



TRANSCEIVERS

10 Base T MAU
- Complete AUI to UTP Link
- Selectable Link and SQE tests
- 6 Status LED's

#2010-TP Sale Priced @ —$49

10 Base 2 Coax MAU
- Complete AUI to Thin Ethernet transceiver
- Selectable SQE test
- up to 600M without a repeater

#2010-BNC Sale Priced @ —$49

FOIRL MAU
- Its loaded call for details

#ET-300F ——————$395

POCKET ETHERNET ADAPTERS

10 Base 2
- Compatible with Net Ware, LANtastic, TCP/IP, and PC-NFS
- Diagnostic Leds for Power/Xmit and Host activity

#PE300B ——————$175

10 Base T
- Compatible with Net Ware, LANtastic, TCP/IP, and PC-NFS
- Diagnostic Leds for Power/Xmit and link/rev, collision, and Jabber

#PE300T ——————$179

Miscellaneous Items

10 BASE 2 Cables		Qty 1	Qty 10	Qty 50	Qty 100	Qty 1000
R5810	Patch Cable RG58U 10'	$4.80	$4.40	$3.90	$3.75	$3.60
R5825	Patch Cable RG58U 25'	$10.00	$9.25	$8.50	$7.50	$6.20
R5850	Patch Cable RG58U 50'	$18.00	$17.25	$16.50	$15.50	$14.50
BC58	Patch Cable RG58U 1000'roll	$68.00	$66.00	$65.00	$63.00	$62.00
Connectors & Splices						
C58T	Connector Twist-On RG58	$2.25	$1.85	$1.15	$.95	$.90
C58C	Connector Crimp-On RG58	$2.05	$1.75	$1.05	$.95	$.90
TFFM	BNC Adapter T type M/F/F	$3.00	$2.40	$2.20	$1.60	$1.20
CFF	BNC inline splice F/F	$1.20	$1,08	$.80	$.70	$.60
Term50	50 Ohm Terminator 1%	$3.00	$2.90	$2.50	$2.40	$2.10

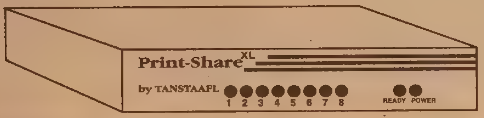
ECONOMICAL PRINTER AND PERIPHERAL SHARING

Print-Share
by TANSTAAFL
1 2 3 4 5

LOWEST COST MULTI-PORT

- 4 serial and one parallel ports
- Easily share one or two printers
- Cables included for easy installation
- 256K Buffer memory expands to 1 Meg.

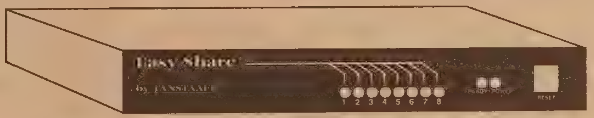
#PS-2 Reg. $299
SALE PRICED AT——————$199



8 PORT SERIAL

- Supports 1 to 4 printers.
- 256K Buffer expands to 4 Meg.
- Cables included for easy installation
- 2 year warranty.

#XL-1 Reg. $399 SALE PRICED AT————$299



8 PORT SER/PAR

- Available in any combination of serial or parallel ports.
- Expandable up to 56 ports.
- 256K Buffer expandable to 4 Meg.
- Too much more to list. Call for our catalog.

9 Combinations all Reg. $895 SALE PRICED AT--$399

Don Medley
President and CEO

We are very proud of our "hard won" reputation for delivering outstanding values in high performance printer and peripheral sharing devices. Literally hundreds of our customers have called or written to tell us how easy our products are to install and to use. Perhaps a true measure of their performance and value is that we receive more orders from repeat customers and customer referrals than we do from our advertising.

We design, engineer, manufacture and quality assure our print and peripheral sharing devices. We design and quality assure our networking products to the same high standards, but to save our customers money this line is engineered and manufactured by others to our specifications and carries our same money back guarantee.

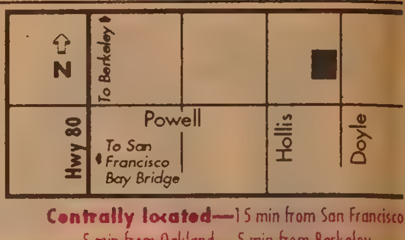
Our sales and technical staff will help you select the right combination of products to deliver the highest possible performance for the lowest possible cost. All Tanstaafl products carry are fully warranted for two full years from the date of your purchase and come with unlimited toll free technical support.

Please call us today, we look forward to serving you.

800-776-5676, FAX 408-748-9431, TEL. 408-748-9330

MICROTECH
International

Serving You Since 1986



Centrally located—15 min from San Francisco
5 min from Oakland—5 min from Berkeley

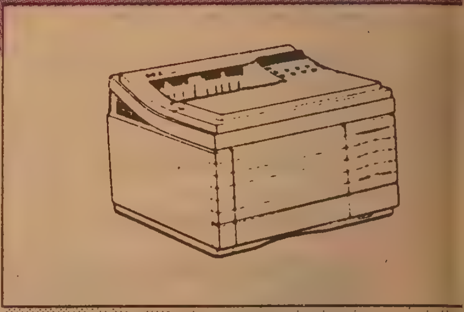
HEWLETT-PACKARD

HP *LaserJet 4*
FOR PC/WINDOWS USERS

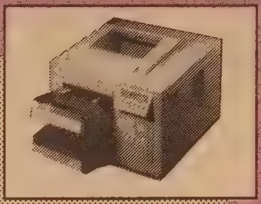
Give your office the advantages of superior looking documents with this printer's stunning 600-dpi resolution and wide assortment of built-in scalable typefaces. It also offers paper handling flexibility that can translate into real productivity gains for your office. Automatic switching between three ACTIVE I/Os makes it easy to share its outstanding print quality among several users.

HP *LaserJet 4M*
FOR MAC/PC Environment

This printer sets a new standard in business printing for Macintosh and mixed Mac/PC environments.
With 600-dpi resolution, it produces near-typeset-quality documents. Integrated PostScript Level 2 software from Adobe gives users access to 35 Type 1 typefaces, and they can download thousands more. Automatic printer language and I/O switching makes it easy to share the printer between Mac and PC users.

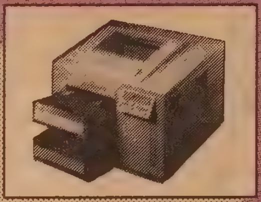


HEWLETT PACKARD
Authorized Reseller



HP LaserJet 4Si

This 17 pages per minute, high-performance, 600dpi network printer offers the power & performance to meet users' expanding needs. Add interfaces, memory, paper-handling at any time.

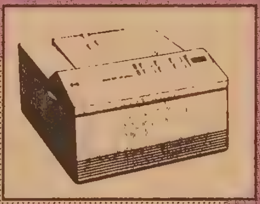


HP LaserJet 4SiMX

The HP LaserJet 4SiMX is a high-speed, high-volume, high-resolution laser printer designed for multiple network environments. It offers simplicity in complex networking environments.

HP LaserJet 4ML

Everything you expect in a Macintosh-compatible 300-dpi laser printer is built in, except for the high price. With its powerful RISC processor, you can print your documents at engine speed. HP's exclusive Resolution Enhancement technology and microfine toner give it print quality that rivals that of much more costly printers. Automatic language and I/O switching make it easy to share between Mac and PC users.



HP LaserJet Ser IIP

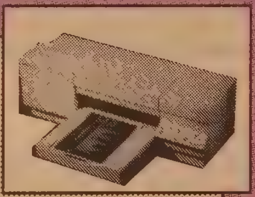
Get true HP LaserJet quality at a great price.
- High-quality 300 dpi text and graphics
- Compact desktop size
- 4ppm

$739

HP LaserJet Ser IIIP

- High-quality 300 dpi text and graphics
- Compact, desktop size
- Prints 4 pages per minute
- Compatible with all major software packages
- Optional 250-sheet paper cassete for dual-bin printing

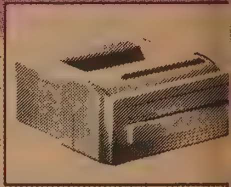
$849



HP PaintJet XL 300PS

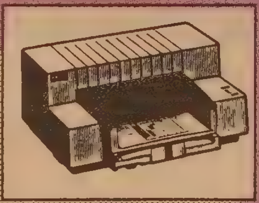
The HP PaintJet XL300 PS Color Postscript Printer offers users the best of both worlds—PCL *and* PostScript printer languages. RISC-based technology and 6MB of printer memory (expandable to 18 MB) accelerate Postscript language processing and help keep your graphics and desktop publishing projects on schedule.

$3195



HP LaserJet 4L

The HP LaserJet 4L printer is everything you want in a laser printer. Complete. Simple to operate. And affordable.
- Up to 4 pages per minute
- 300x300 dpi with further refinement by HP Resolution technology
- 26 Scaleable typefaces



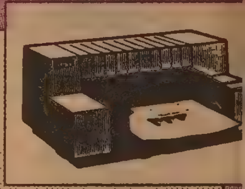
HP InkJet Printers For/PC

- 3 Year mfg. warranty
- Extremely quiet operation
- 300 dpi printing
- 7 ppm in best mode 550C

$359/479/679

We carry the complete line of HP Printer Supplies, Accessories, and Software Utilities.

- Toner cartridges
- InkJet cartridges
- Network Boards/Cables
- HP Printer Font Cartridges



HP InkJet Printers For Macintosh®

- 3 Year mfg. warranty
- Extremely quiet operation
- 300 dpi printing
- 7 ppm in best mode 550C

$359/479/679

100% FINANCING AVAILABLE OAC
PLEASE CALL STORE FOR DETAILS

Authorized Factor

HEWLETT PACKARD

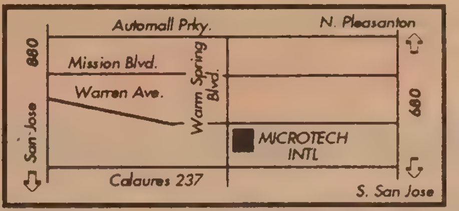
COMPAQ

EMERYVILLE

5865 Doyle Street
Emeryville, CA 94608
TEL: (510) 658-1433
FAX: (510) 658-7339

FREMONT

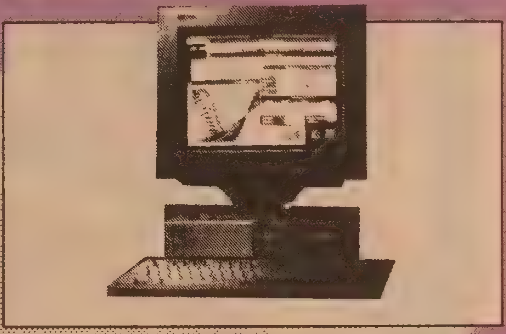
47000 Warm Springs Blvd. #8
Fremont, CA 94539
TEL: (510) 226-8650
FAX: (510) 226-8652



Hours:
Mon - Fri 9-6
Closed Sat & Sun
Closed Fri 1-2
Fremont Store Open
Sat. 11-5 thru Dec.

HP Vectra Family of Computers

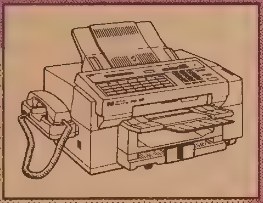
Hewlett-Packard offers a whole range of fast, expandable, high-performance personal computers to meet the demands of the most complex business and technical environments, including single-user, multi-user, PC-based CAD and LAN. Above all, they're backed by HP's impeccable reputation for quality and reliability. Now 3 year on-site warranty on all 486 systems.*



"Each machine demonstrates HP's workmanship and dependability, while offering cutting-edge performance"
-PC Magazine

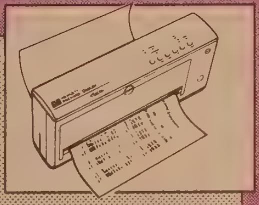
HEWLETT PACKARD
Authorized Reseller

* When purchased by June 30, 1993



P Plain Paper ax 310

- 300 dpi scanning & prints
- Built-in telephone answering machine interface
- 20-page auto document feeder
- 32 greyscale level

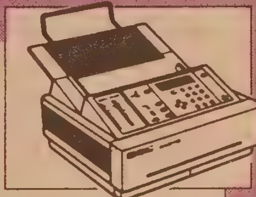


HP Portable InkJet Printer

- 300 dpi, laser quality
- Lightweight 4.4 lbs
- Built-in fonts
- Prints up to 100 pages on battery power

Battery	$49
Paper Feeder	$89
Carrying Case	$89
Rapid Recharger	$89

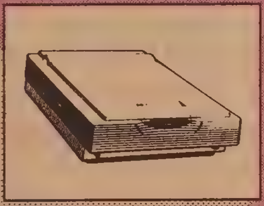
$379*



HP LaserJet Fax

- Plain paper fax machine utilizes your existing laser printer
- 300 dpi resolution
- Auto document feeder capability
- 17 sec/page transmission

$899



HP ScanJet Scanners

IIP
- Flatbed, monochrome
- 300 dpi resolution
- 256 grayscale levels

IIC
- Monochrome + color images + text
- Recognizes any font
- Manages long documents w/ease

HP Plotters

- **HP DesignJet 600 D/E Size Plotters**
- **HP DraftPro DXL Plotter**
- **HP DraftPro EXL Plotter**
- **HP 7475A Color Desktop Plotter**
- **HP 7550 Plus Color Desktop Plotter**

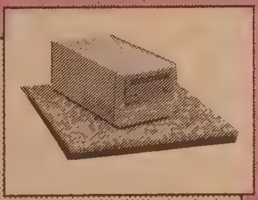
HP NETWORKING PRODUCTS

- HP JetDirect Card for LocalTalk/Ethernet/Token Ring
- HP 3000 Printer Interface—your connection from HP 3000 mini computers to HP Printers

IP Computer/Printer Repair

- On-site/in-house repairs
- Loaners available while we service your equipment*
- Extended service contracts
- HP authorized technicians
- On-site preventative maintenance. Call for appointment.

* Call Store for Details



HP DAT PC Backup Solution

The HP DAT PC Backup Solution is the quick and easy answer to saving your computer data.

The high performance HP DAT PC Backup Solution uses a 2.0 gigabyte DAT drive, can save 300 megabytes of data in under 30 minutes, and can restore the data at the same speed

Authorized HP

HEWLETT PACKARD

Warranty and Non-warranty Service/Repairs

ervice Center for:

OSHIBA **OKIDATA**

PRICES REFLECT A CASH DISCOUNT

All prices are subject to change without notice.
Prices good through 6/28/93.
All brands and product names are trademarks of their respective companies.

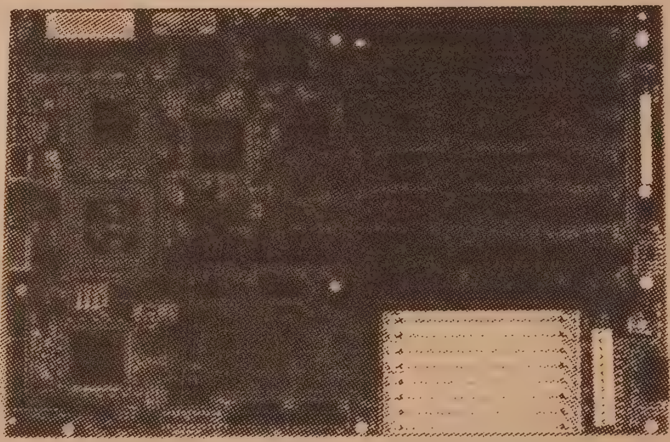
DOMINO COMPUTER OFFERS A

LIFETIME WARRANTY

For as long as you own your computer

You can go to any of the
thirty or more **DOMINO** Stores for Service.
At **DOMINO** we give you *Instant Service* with
High Quality Products

486 VL EISA Motherboard



Made In USA

$189

ALL BUS DESIGN

- 1 VESA Local Bus Slot
- 3 EISA Bus Slot
- 4 ISA Bus Slot

If you are looking for any 486 CPU's V-L or EISA Board, this is IT!

Come to any of our 30 stores for your custom configurations.

Lifetime Warranty Agreement

1. *Lifetime warranty for labor.*
2. *Warranty on parts is one year.*
3. *Warranty applies to the CPU system, excluding outside peripherals such as monitor, keyboard, mouse, printer, etc.*
4. *All components within the CPU system must be purchased from **DOMINO COMPUTER**, including subsequent upgrades.*
5. *Original invoice must be presented for warranty service.*
6. *This warranty is non-transferrable.*

BLOSSOM HILL
461 Blossom Hill Rd., Ste H-1
408 363-1800

SUNNYVALE
1214 Apollo Way Ste. 404-2
408 749-0216

CAMPBELL
486 E. Campbell Ave. Ste 102
408 374-7477

SANTA ROSA
1740 Santa Rosa Ave.
707 523-2055

BERKELEY /EMERYVILLE
1522 Beach St. Ste. B
510 653-6286

OAKLAND
1238 Harrison
510 839-1800

LOS ALTOS
111 Plaza North
415 941-7778

MILPITAS
976 Hanson Court
408 946-6991

VALLEJO
480 Redwood St., Ste. 41
707 644-5055

CONCORD
1130D Burnett Ave.
510 682-8934

PLEASANTON
6700 Santa Rita, Ste. D
510 847-1771

MILLBRAE
231 Millbrae Ave., Ste 101
415 259-8080

SANTA CLARA
2536 Seaboard Ave.
408 955 9290

SACRAMENTO
3019 Arden Way
916 972-0311

HAYWARD
26222 Industrial Blvd.
510 732-0377

SAN RAMON
2217 San Ramon Valley Blvd., Ste C
510 820-6022

SAN FRANCISCO
3400 Geary Blvd.
415 668-9311

FREMONT
46573 Mission Blvd.
510 623-7181

DALY CITY
7317 Mission Street
415 994-7581

SAN RAFAEL
757 Lincoln Ave., Ste. 30
415 453-8525

Domino®
COMPUTER, INC.

CALL 1-800-22-DOMINO FOR THE STORES NEAREST YOU!

Technology To Support Telecommuting Is Improving

New Communication And Information Technologies Help Keep Teleworkers In Closer Touch With The Home Office.

BY ROBERT MOSKOWITZ

Telecommuting is a straightforward way to cut back on the costly time, energy, pollution, and space requirements normally associated with people getting to a job and performing useful work. It accomplishes this by moving the work, not the worker. Although telecommuting sounds like it might be complicated and many people associate it with high technology, if you've been reading these articles you probably recognize that technology is not the central issue in telecommuting. Far more important are issues of workers having the right mix of personal styles, managerial support, task responsibilities, and motivation. For thousands of successful telecommuters, the only technology they need is a pad and pencil.

Although technology is not essential to successful telecommuting, computers are installed in more than 50% of the households where people telecommute to work.

But sometimes good technology helps make telecommuting a darn sight easier and more efficient. For example, computer programmers and data entry workers both benefit from today's advanced computer networks that allow them to operate from a terminal anywhere in the world with virtually the same speed and efficiency as if they were working down the hall from the main computer room. Advanced devices help move information faster and keep teleworkers in closer touch with the home office.

In recent years, communications technology has been improving at such a rapid clip that millions of employees who formerly had no hope of working successfully from home, or for that matter from anywhere outside the central office, are now good candidates for cost-effective telecommuting from any location that's convenient for them. So let's spend a few minutes looking at modern communications technology, and how it can be deployed in support of telecommuters.

ADVANCED PHONE SERVICES

After the pencil and paper, teleworkers' next most-often used technology is the telephone. Just making a call to the office or to a customer or client increases any employee's power to function effectively from a distance. But the basic telephone is now being enhanced with additional features that make telecommuting easier and less of a hindrance to successful job performance.

ISDN. Originally proposed more than a decade ago as a worldwide standard, ISDN is only now becoming readily available in the United States. ISDN stands for Integrated Services Digital Network, and the key operative word is "digital." It brings a marked increase in information-carrying capacity and flexibility to existing telephone installations. ISDN is ideal for a telecommuter who wants to transfer a large volume of information to or from home or elsewhere without making the usually required investment in new wiring.

ISDN can be used with fiber optics, coaxial, or just about any type of cabling system. But it makes particularly good sense when used with the twisted-pair wiring that makes up the overwhelming bulk of our already installed telephone system. ISDN—which requires ISDN-compatible telephone equipment—turns these prosaic wires into a virtual highway of information, providing simultaneous channels for any combination of computers, faxes, and voice conversations. By making two or more ISDN telephone calls to the same place, at a moment's notice you can quickly and easily add more information-carrying capacity, as needed, including the power to carry real-time video signals.

Call Forwarding and 700 Numbers. Call Forwarding programs one phone to call another automatically, so people dialing the first phone are smoothly connected to the second phone—even at another location—without any action on their part. The new 700 numbers are a smoother, faster technology to do much the same thing. Once assigned a 700 number, a teleworker can quickly and easily make all the calls dialed to that number ring on—or "terminate" on—virtually any other telephone in the world, and can change where the calls terminate at a moment's notice. For people working in an office, Call Forwarding is mildly useful because it's

Copyright © 1993 by Robert Moskowitz. All rights reserved.

Robert Moskowitz is a business consultant based in Woodland Hills, CA, who writes frequently on productivity, office automation, and technology.

relatively easy for a colleague, customer, or supplier to call the main number and have the call switched anywhere the intended recipient is sitting. But when someone works from two or more locations at different times and days, some of the people trying to make contact may not know where to call at the moment, or may be forbidden by company policy from knowing the telecommuter is working from home.

> *Because email automatically eliminates the problems of reaching peole who work out of several locations or in different time zones, it's an inexpensive and effective way to keep teleworkers in closer touch with people at the home office.*

Used properly, Call Forwarding and 700 numbers can automatically route all incoming calls to the proper person, wherever he or she may be working at the moment. This technology gives teleworkers a great deal of freedom they otherwise would not have. They can move from office to office during the day, work in different locations on different days of the week, and switch their schedules around at a moment's notice to meet a host of demands. All the while, they remain readily accessible to others because they can be reached at a single telephone number.

Call Waiting. Call Waiting uses just one telephone line, but simulates the features of a multi-line business system. While you're on the line, a short tone signals another incoming call, and the caller hears a steady ringing. A few pushes on the touch-tone keypad allow one to switch back-and-forth between the first call and the second. With this service you can continue to make telephone calls or spend as much time on the phone with one customer or client as you need, even when you are expecting someone else to call you. Call waiting allows a teleworker to operate more efficiently than is possible with just a single line and costs far less than adding a second one.

Conference Calling. This is the flip side of Call Waiting, which allows you to receive two calls at the same time. Conference Calling allows you to make two calls, and to put the two calls together to make a conference call. Again, this service simulates a multi-line business telephone system, and allows the telecommuter to get more done with the single telephone line usually found at home or in a small office.

Speed Dialing. This is software or hardware that dials a preset sequence of numbers at the push of a 2- or 3-digit number on the telephone. Speed Dialing is a big help during a long day of working away from the office because staying in touch often requires repeated dialing of area codes and numbers, with extensions—a tedious chore that is prone to errors. Whether rented from the telephone company or purchased built-in to a special telephone, Speed Dialing tends to enhance productivity for anyone who uses the telephone to do business.

Cordless Telephones. These are relatively inexpensive telephones that use a two-way radio link between a cordless handset and its base-station somewhere in the home or office. The only wire is between the base station and the telephone jack in the wall. Cordless telephones come in one-line and two-line versions, and permit the teleworker to wander or work anywhere inside or outside the home or office, while still being "near the phone." On one occasion, I brought the cordless phone up on my roof as I swept off some leaves and found myself handling a business call while sitting fifteen feet in the air.

Cellular phones. With telephones so vital to teleworkers, it's only natural that a true cordless telephone—one that works not only in and around the home, but nearly anywhere in North America—would become a popular tool with teleworkers. Although cellular phones are more expensive than wired phones (the cost is comparable to calling coast-to-coast all the time), they're a great convenience for people who need a phone at times when they aren't likely to be near one. Teleworkers who operate from home or a satellite office usually don't need cellular services. But people who work on construction sites or other remote areas, or who spend a good deal of the day moving from one location to another often consider them essential.

FACSIMILE

Facsimile (fax) is one of the most important new technologies to emerge in the last decade or so. As you almost certainly know, fax machines allow you to put a piece of paper in here, and have an exact image of it come out, almost instantaneously, over there—anywhere, in fact, that has a fax machine and can be reached by telephone. Fax machines are very easy to operate, require almost no training to operate, and are far less expensive than the messengers and express mail they replace. Teleworkers—and others—can use the fax to send and receive documents very rapidly and cost-effectively.

In the late 1980s and early 1990s, tens of millions of fax machines were installed worldwide, all 100% compatible with each other and all a simple telephone call away. Nearly a million American teleworkers have fax machines installed at home. This well-established infrastructure makes it easy, fast, and economical to fax drafts of memos and reports, hand-written telephone messages, contracts for negotiation, photos, drawings and artwork, and dozens of other types of information between the teleworker, the main office, and other locations—such as the offices of clients, customers, or suppliers. By faxing a document and then calling to talk about it, the extra distance to the teleworker is totally erased.

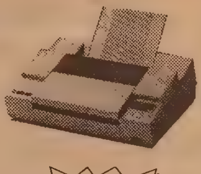
Cellular faxes are portable versions of the standard fax, and make sense for teleworkers who need to send and receive

Inventory Blow out Sale!

Only at Computer Selection

Much more than a Super store - the Macintosh® specialists

Apple® Color Printer



- 360-dpi resolution
- 64 scalable TrueType™ fonts
- The perfect choice for desktop color printing

$2189

In Stock!

AppleCD™ 300

$578.99

Access the world of CD-ROM!

- Operates at twice the speed of ordinary CD-ROM drives
- Twice as fast as the AppleCD™ 150
- Special CD Audio Chip lets you play audio compact discs

Authorized Dealer

Apple, the Apple logo, AppleTalk, LaserWriter, LocalTalk, Macintosh and StyleWriter are registered trademarks of Apple Computer, Inc. AppleCD, Apple SuperDrive, Macintosh Centris, PowerBook, System 7, and TrueType are trademarks of Apple Computer, Inc. Classic is a registered trademark, licensed to Apple Computer, Inc. NuBus™ is a trademark of Texas Instruments. Sony® and Trinitron® are registered trademarks of Sony Corporation.

Apple® Macintosh® PowerBook™ 145

- 25-MHz 68030 microprocessor
- 4 MB RAM, 40 MB HD
- Internal Apple SuperDrive™
- Sleek, ergonomic design

New Low Price

$1889.99

Unequaled Power and Speed! Apple® Macintosh® PowerBook™ 180

- 33-MHz 68030 microprocessor
- 4 MB RAM, 80 MB HD
- Internal Apple SuperDrive™
- The most powerful member of the PowerBook™ family

$3899.99

Apple® Personal LaserWriter® LS

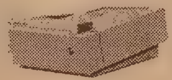
Lowest priced Apple® Laser Writer®

- 300 Dots Per Inch
- 4 pages per minute
- 39 built-in TrueType™ fonts
- Professional-quality laser printing

$699

Apple® Personal LaserWriter® NTR Printer

- 300-dpi resolution
- Supports TrueType™ fonts
- prints 4 pages per minute
- Affordable price



$1348

Ready to Move

Apple® LaserWriter® Select 300 Printer

- 300-dpi resolution
- Prints 5 pages per minute
- Comes with 39 scalable TrueType™ fonts

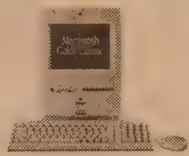
$789.99

Apple® Macintosh® Color Classic®

- Displays up to 256 colors on a built-in Trinitron® screen
- Apple SuperDrive™
- The complete color package

$1299.99

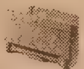
4 MB RAM, 80 MB HD



Apple® Macintosh® Classic® II Bundle

Complete System Package!

- 68030 processor, 16 MHz
- Internal Apple SuperDrive™
- all-in-one design



Apple® StyleWriter® II Printer & Cable

- Laser-quality printing at an affordable price
- Lotus 1-2-3
- Adobe Type Manager

Total value $2018. Your price...

$1189*

4 MB RAM, 40 MB HD

*Price includes CPU, Keyboard, Printer, Cable, & Software

While supplies last

Twice as fast as a IIci or IIvx!

Apple® Macintosh Centris™ 610

- 20 MHz Motorola 68040 chip
- Apple SuperDrive™
- Space for an additional internal storage device
- Built-in LocalTalk®
- AppleTalk® networking software

New low price!

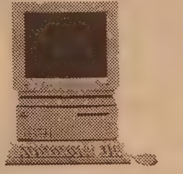
Call for the lastest

Monitor & Keyboard extra

4 MB RAM, 80 MB HD #M1345 LL/A

Multi-Media PowerHouse!

Apple® Macintosh® IIvx



Monitor & Keyboard extra

Incredible Price!!

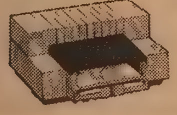
- 32 MHz 68030 processor
- 68882 math coprocessor
- Internal Apple SuperDrive™
- Optional internal CD-ROM drive
- 3 NuBus™ slots, accelerator slot
- supports 7 SCSI devices
- Future expandability

$1649.99

4 MB RAM, 80 MB HD

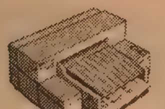
HP DeskWriter C Printer

Affordable Color!



- Quality COLOR printer
- 300 dpi
- 100 sheet paper tray
- Scalable fonts
- Grayscale blacks

HP DeskWriter 550C Printer

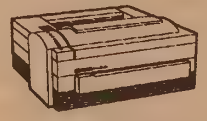


- Quality plain-paper printing in BLACK & COLOR
- 300 dpi
- 35 scalable typefaces
- Macintosh® System 7™ compatible

$699.99

HP LaserJet 4L Printer

New from HP! A First Class Printer for the Price of Coach!



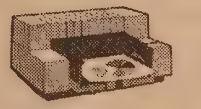
- 300-dpi laser printing with Resolution Enhancement technology and microfine toner for smooth, sharp text and graphics
- 1MB standard memory with Memory Enhancement technology effectively doubles your printer memory
- 26 built-in scalable typefaces let you shrink and enlarge type

Quality Printing

HEWLETT PACKARD

Authorized Dealer

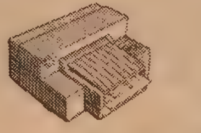
HP DeskJet 500C printer



- Affordable laser-quality printing
- Allows 300-dpi COLOR printing on plain paper & transparencies
- Wide variety of built-in fonts

$519.9

HP DeskJet 550C printer



- 300 dpi, laser-quality BLACK & COLOR printing
- Prints on plain paper, special paper, transparencies, & envelopes
- Convenient color printing w/ two ink cartridges

$699.99

COMPUTER SELECTION

Redwood City
(415) 368-8828
1001 Middlefield Road
(at Woodside Rd., by Price Club)
M-F 9:00 - 6:00 Sat 12 - 5
Fax: (415) 368-8803

San Francisco
(415) 543-9888
201 Mission Street
(across from PG & E Hdqtrs)
M-F 9:00 - 5:30 Sat 10 - 4
Fax: (415) 777-1177

Sunnyvale
(408) 746-2288
1202 Apollo Way
(at Central & Lawrence)
M-F 9:30 - 5:30 Sat 12 - 4
Fax: (408) 746-2208

Walnut Creek
(510) 943-2882
1676 N. California Blvd
(next to Max's Opera Cafe)
M-F 9:00 - 5:30 Sat 12 - 5
Fax: (510) 943-2890

[illegible] subject to stock on hand. Not responsible for errors or omissions. Sales price good for one week from date of advertisement faxes when they aren't likely to find a plugged-in fax machine available nearby.

VOICE MAIL

Voice mail is essentially an electronic form of the secretary who takes telephone messages and passes them on to the intended recipient. But it has the added advantage of capturing the caller's entire message, including the inflection and tone of voice. There are essentially two types of voice mail services:

Messaging. This is the recording function of the voice mail system. It captures the caller's voice and replays it—often only to the intended recipient, who punches in a special identifying code—whenever and wherever desired.

Forwarding. This gives voice mail extra power to enhance productivity. Once you retrieve a voice message, you can add your own comments and send the whole package back to the original caller (provided he or she has a telephone on the same voice mail system) or to anyone else on the system. This saves a lot of time and paperwork, and tends to make teleworkers's desk seem as close as the nearest telephone.

PERSONAL PAGING

With modern satellite technology, a teleworker can carry a personal pager, or "beeper," that will work anywhere in North America. Some of the more elaborate ones will not only sound a tone, but will display a telephone number or another message. Some systems will record the caller's voice message, then trigger the pager signal, and play back the message when the paged person calls in for it.

Regardless of how much or how little information it delivers, though, a personal pager provides a special link between the home office, customers or clients, and the teleworker. It allows anyone who knows the right phone number to make a high priority contact with the teleworker, anywhere he or she happens to be. For the teleworker, it provides a higher level of confidence that he or she can be reached without having to sit at a desk or stay within earshot of a telephone.

COMPUTER SERVICES

Although technology is not essential to successful telecommuting, computers are installed in more than 50% of the households where people telecommute to work. Many have modems that allow communications with computers at the home office. This allows telecommuters to connect with office networks, tap into computerized databases, exchange electronic mail with people elsewhere in the company, and generally remain well-connected to the office to which they would normally commute.

Electronic Mail. This term refers to a general computer capability to exchange short messages, data files, and whole computerized documents with other computer users. Email, as it is popularly called, most often works primarily between people in a single company or division. But commercially available email networks

continued on page 2

NEW!

It's the newest system board from Alaris, manufactured in the U.S. by **IBM®** Charlotte, featuring IBM's clock-doubling 486SLC2 50MHz or 66MHz processor, and a **three-year** limited warranty on the system board and CPU!

Power Meter version 1.81 benchmarks the 486SLC2/50 CPU at 14.7 MIPS and the 486SLC2/66 at 19.3 MIPS versus the Intel® 486DX/33 and 486DX/50 at only 10.7 MIPS and 15.4 MIPS. The 486SLC2 CPU's achieve this incredible performance with an internal 16KB cache - double the size of the Intel 486's internal cache!

The Leopard 486SLC2 VESA Local Bus System Board is ideally suited for running Windows™ and Windows™ applications. With two VESA Local Bus slots, even higher performance can be achieved by using the Alaris Phantom S3-Based VLB Graphics Accelerator and the Alaris Patriot VLB IDE I/O Controller. The combination provides up to 500% improvement over a standard VGA card and up to 200% improvement over a standard IDE card.

With **IBM®** manufacturing quality, excellent price/performance ratio and a **three-year** limited warranty, the Leopard 486SLC2 System Board is an unbeatable value.

alaris

66 MHz!

3 YEAR SYSTEM WARRANTY BOARD

50 MHz also available!

LOCAL-BUS 66MHz

IBM 486SLC2 66MHz cpu
2Mb RAM, 64Kb external cache
1.44Mb Floppy, KB, DOS 5
120MB Hard Disk
Floppy/IDE/IO Controller
Alaris Phantom Local Bus SVGA
Video Adapter w/1MB RAM
3 year system-board warranty
Optional FPU on board
FREE training class!

$1109 - monitor extra -

LOW COST-BUNDLE

$849 - monitor extra -

IBM 486SLC2 50MHz cpu
120MB Hard Disk
1.44Mb Floppy, KB, DOS 5
Floppy/IDE/IO controller
SVGA adapter w/1MB RAM
2Mb RAM
3 year system-board warranty
FREE training class!

50MHZ BUNDLE

$909 - monitor extra -

IBM 486SLC2 50MHz cpu
120 MB Hard Disk
1.44Mb Floppy, KB, DOS 5
Floppy/IDE/IO controller
SVGA adapter w/1MB RAM
2Mb RAM, 64Kb external cache
3 year system-board warranty
FREE training class!

Great Service and Support -- GUARANTEED

SF MICRO
1143 Post Street, S. F., CA 94109

AUTHORIZED:
hp COMPAQ NEC TOSHIBA
IBM AST OKIDATA EPSON EVEREX

[415] 929-1505
M-F 8:30AM-5:00PM PST

Uncle Ralph's "Consistently Low Prices... Staffed by True Afficionados"

Susan Stefanac
S.F. Focus Jan. '93

BEST • OF • THE 1992 EAST • BAY

486-SX25

Monitor Included

- 80MB Hard Drive
- 2MB RAM
- VGA Color Monitor & Board
- Microsoft DOS 5.0

Complete System includes 2 serial, 1 parallel & 1 game port. Floppy drive, small footprint case and 101 enhanced keyboard.

$999 $50 Month

intel inside

0% Financing Up to $2500

You can defer payment for 90 days and pay no interest at all. Or you can charge it to your Uncle Ralph's credit card account. Sometimes we even take cash! Credit subject to lender approval.

Same Day Repair Service, 7 Days a Week!

If you have a problem with one of our computers we can usually have it fixed while you wait. We have an excellent technical support staff that's dedicated to keeping you happy.

We Take Trade-Ins

Trade In Your Old Stereo, Computer or Car Stereo

Towards the Purchase of *Anything* in the Store!

PACKARD BELL

America grew up listening to us. It still does.

486SX Legend 605

intel inside

- 85MB Hard Drive
- 2 MB RAM
- VGA Color Monitor

Plus...VGA Video Card, Microsoft Windows, Works for Windows, money management & entertainment pack. MS-DOS 5.0 & More!

$1099 $55 Month

Legend 610 - 25MHz

- 107MB Hard Drive

Plus all the same features as the Legend 605

$1199

Not affiliated with any other Bell System entity. The Intel Inside logo is a trademark of Intel Corp.

486 Local Bus Systems

Ready TODAY

Uncle Ralph's Complete Systems Include

- 1MB 16.8 Million Color VESA Local Bus Video Board
- 14" Color Monitor • 2 Floppy Drives • Enchanced Keyboard
- Parallel, Serial & Game Ports • Windows 3.1 & DOS 6.0

plus ... Uncle Ralph's *Lifetime Labor Warranty*

486SX-25 Local Bus System

- 120MB Hard Drive • 4MB RAM
- 128k Static RAM Cache • AMI Bios

$1299 $65 Month

486DX-33 Local Bus System

- 174MB Hard Drive • 4MB RAM
- 256k Static RAM Cache • AMI Bios

$1699 $85 Month

486DX2-66 Local Bus System

- 250MB Hard Drive • 8MB RAM
- 256k Static RAM Cache • AMI Bios

$2299 $115 Month

Lowest Prices... Guaranteed!

Satisfaction Guaranteed

Helpful Advice & Lifetime Labor Warranty **on Uncle Ralph's Brand Computers**

Free Training

New Horizons A Division of MTC
COMPUTER LEARNING CENTER

$225 Value Free with the purchase of any computer system

Super Notebooks

MITAC 386 SL25 Notebook

- 80 MB Hard Drive
- 2 MB RAM
- 9" VGA Screen

$1299 $65 Month

1 Year Parts/Labor Warranty

Avanti 486 SLC-25

- 80MB Hard Drive • 2MB RAM
- 6 Hour Battery Life • FAX/Modem
- VGA Screen

$1799 $90 Month

- 120MB Hard Drive • 4MB RAM • Trackball
- DOS & Windows • WinFax Pro
- 6 Hour Battery Life • FAX/Modem
- VGA Monitor

$2199 $110 Month

Now Available with VGA COLOR MONITOR $2399

TOSHIBA 386 VGA Color

- 4 MB RAM
- 120MB Hard Drive • Trackball
- 4-6 Hr. Battery • DOS 5.0
- Great screen & keyboard

VGA Color Under $2500

$2399

Twinhead 486 DX33 SlimNote

Active Matrix Color Screen

- 130 MB Hard Drive

$3999 $200 Month

VGA Screen $2399

PRINTERS

Panasonic Office Automation OA

24 Pin Letter Quality Printer

Proven workhorse prints up to 240 CPS with beautiful text & graphic. 5 built-in fonts and *2 Year Warranty*

$227 KXT 1123

Panasonic Near Letter Quality Our most popular printer $168 KXT1180i

Canon

Portable Ink Jet Printer

Perfect Laptop Accessory $279

Canon Bubblejet Printer

Letter Quality Printer
360 dpi, 13 Resident fonts & more great features

$50 Rebate

$319 After Mfg. Rebate

OKIDATA

Desktop LED Printer

This laser quality 300 dpi printer has crisp blacks and publication quality output. HP Series II compatible, with standard typefaces/fonts and a slim, low-profile design.

$30 Month $599

SHARP

600 DPI Laser Printer

- 8 PPM & AMD RISC processor
- PCL 5 compatible • 27 fonts
- 1MB RAM (upgradable to 9MF)
- High Resolution Technology & microfine toner for sharp output

Reduced $1099 $55 Month

Uncle Ralph's Credit

- Low Monthly Payments
- Approval Usually within Minutes

Subject to lender approval. Monthly payments subject to interest surcharge. Minimum monthly payment per account is $20. Down payment may be required. Interest payments based on 24 months O.A.C. Based on 21% A.P.R

2569 Telegraph Ave. Berkeley
(510) 841-5280
FAX NUMBER: 841-4743
Open 7 days: Mon.-Sat.10:30-7, Sun 12-5

Free Parking

Items limited to stock on-hand & subject to prior sale.
Ad expires 6-15-93. © Uncle Ralph's, 1993

Uncle Ralph's
Your Uncle in the Business!

MITSUMI
SineTec
adaptec
TEAC
ViewSonic
TECHNOLOGIES INC
UltraStor
Zoltrix
DIAMOND
Kingspao
Key Tronic
Happy 6th

Dealer Rebate
$50

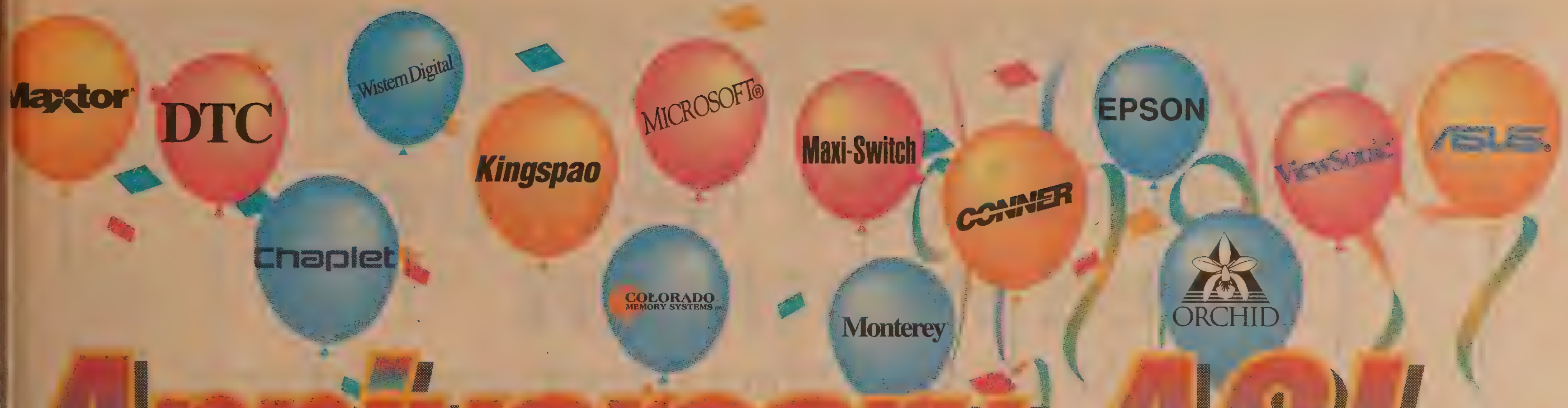
Introducing The Powerful, Top-of-the-line MATADOR Notebooks

Local Bus Display with VESA Local Bus Docking Station.

Receive $50 rebate when you purchase any of the following MATADOR for resell!

Model	**Processor**	**Memory**	**Storage**	**Display**	**Weight** (includes battery)
MATADOR VL4500	80486DX2-66 (exp. to 20MB)	4 MB (exp. to 20MB)	80/120/200MB HDD & 1.44MB FDD	Active/Passive Color or Supertwist mono; 640x480 64 Greyscales	6.6 lbs.
MATADOR VL4000	80486DX-33	4MB (exp. to 20MB)	80/120/200MB HDD & 1.44 MB FDD	Active/Passive Color or Supertwist mono; 640 x 480 64 Greyscales	6.6 lbs.
MATADOR SB 3500	80486SLC-33	2MB (exp. to 18 MB)	80/120/200MB HDD & 1.44MB FDD	FSTN LCD w/ backlight; 640x480 64 Greyscales	4 lbs.
MATADOR SB 3000	80486SX-25/33	4MB (exp. to 20 MB)	80/120/200MB HDD & 1.44 MB FDD	FSTN LCD w/ backlight; 640 x 480 64 Greyscales	4 lbs.
MATADOR NB 2000	80486DX-33 Optional DX2-66, 486SX-33	4 MB (exp. to 20 MB)	80/120/200MB HDD & 1.44 MB FDD	Active/Passive Color or Supertwist mono; 640x480 64 Greyscales	6.8 lbs.
MATADOR NB 1000	80486 SLC-33	2 MB (exp. to 12MB)	80/120/200MB HDD & 1.44MB FDD	FSTN LCD w/ backlight; 640 x 480 64 Greysclaes	6.4 lbs.

PowerMeter is a trademark of DiagSoft Incorporated. IBM® is a registered trademark of International Business Machines Corporation. Intel and 486DX33 are registered trademarks of Intel Corporation. Windows is a trademark of Microsoft Corporation. All specifications, terms & conditions subject to change without notice. All products are trademarks of their respective companies.

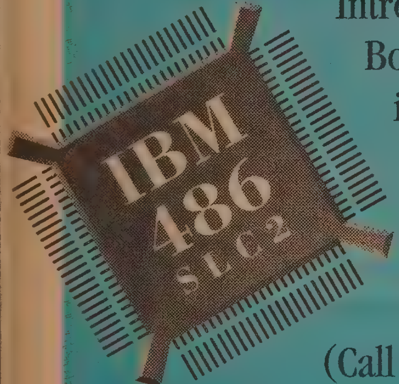

Maxtor
DTC
Western Digital
Chaplet
Kingspao
MICROSOFT
COLORADO MEMORY SYSTEMS
Maxi-Switch
Monterey
CONNER
EPSON
ORCHID
ViewSonic
ASUS

Anniversary, ASI

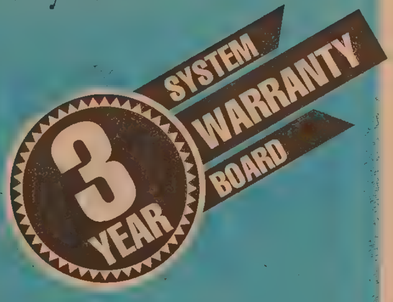
NEW

aLaris

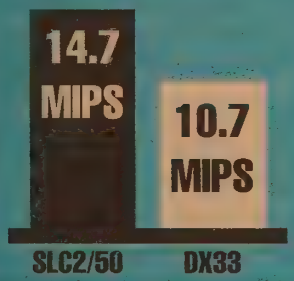
IBM Motherboards


IBM
486
SLC2

Introducing the newest 486SLC2 System Board - designed by Alaris, manufactured in the U.S. by IBM® Charlotts, featuring IBM's clock-doubling 486SLC2 processor, and a three year limited warranty on the system board and CPU (Call your Sales Representative for more details).


3
YEAR
SYSTEM
WARRANTY
BOARD

PowerMeter™ v1.81



PowerMeter™ version 1.81 benchmarks the 486SLC2/50 CPU with it's 16KB internal cache at 14.7 MIPS versus the Intel 486DX/33 at only 10.7 MIPS!

ASI EXPO '93

Looking forward to ASI EXPO '93 held on August 18(Wednesday) at Red Lion Inn.

All resellers and vendors are welcome! Call your sales representative for more details!

ASI®

Inc. The 500
1992

Dealer inquiries welcome

46820 Fremont Blvd., Fremont, CA 94538 Tel: (510)226-8000 ext. 108 or 145 Fax: (510) 226-8858
California • Houston • Dallas • Atlanta • Kansas

Does Your Network Need Pentium?

Intel's New Chip Offers Important Features For Many Situations

BY YACCO

LANS

If you're planning a large-scale network, you're also undoubtedly planning to evaluate servers based on Intel's new Pentium chip. When you need power, it makes sense to consider the latest chips you can find, and there's no doubt that the Pentium is Intel's hottest design. But Pentium also possesses some uncommon features which are expressly intended to preserve data integrity—a major issue in mission-critical applications.

Should Pentium be at the heart of your new servers? It depends on what operating system they'll be running, on just how large your networks are, and on how critical your applications are. Tomorrow's network is liable to be running on Microsoft's NT or some other operating system designed to run on multiple platforms. That will give you more vendors, and more silicon, from which to choose. Your choice may not even need to be from Intel. In this new environment, alternatives to the Intel family become viable.

INTEL VS. MOTOROLA

Pentium is Intel's best, but it isn't necessarily going to be the meanest dog in the reticular junkyard. It is more integrated than the i486—stuffing 3.1 million transistors onto its slab of BiCMOS where the i486 contains just 1.2 million transistors. But it does it with a larger area, not an advanced process. It uses the same 0.8 micron design rules found in the i486, and like the i486, Pentium has a 32-bit architecture.

There are chips on the horizon that use more advanced processes. The Motorola 68060, a chip with many of the same characteristics of the Pentium, is one of them. Block diagrams for both chips will be very similar. Each is a superscalar integer machine with the ability to decode and dispatch multiple instructions—branch, integer, and floating-point—per clock cycle. They have twice the integer-processing pathways of, and more buffers than, their predecessors. Both have an independent floating-point processor and separate caches for data and addresses. Their prefetch caches pipeline instructions. They both use branch acceleration and branch caching. (Intel claims that its branch-predictor unit alone is responsible for an average performance increase of 25% for all applications.)

However, the 68060's combination of a 0.5 micron rule and CMOS process can operate at as little as three volts. The chip will use roughly half the Pentium's power and die area for its 2.8 million transistors. Furthermore, Motorola claims that the 68060 has an advantage because it's more RISC-like than Pentium. All of its instructions are converted to a RISC format as they enter the chip.

Copyright © 1993 by Wayne A. Yacco. All rights reserved.

DESPITE

ITS INCREASE IN PROCESSING POTENTIAL, MUCH OF PENTIUM'S COMPILED SILICON COMES FROM A PROVEN DESIGN.

Whether Pentium's BiCMOS and 0.8 micron rules make it run a little hotter and slower than some of the competition remains to be seen. In any event, there's no reason why Intel can't change the process down the road. For now, it has other features that set it apart. One such feature is its external bus. According to Yair Sakov, Pentium product marketing manager, the chip's superscalar design makes it too fast for 32-bit I/O. So, Pentium has a 64-bit external bus that connects it to the outside world, through both code and data caches, with double-word I/O. (Motorola is using a pure 32-bit design in the 68060 because, maintains Jim Reinhart, manager of marketing and applications for the Motorola 68000 family, the company found only a 2-3% performance increase by going to a 64-bit external bus.) Moreover, the path between Pentium's code cache and prefetch buffer is a super-wide, super-fast 256 bits. It's the chip's buffer that feeds either of its two pipes—the U and V pipes—which, in turn, route tasks to the superscalar architecture's two integer units.

PENTIUM AND THE NETWORK

What about the features that could make Pentium a more desirable chip for network applications?

First, there's reliability. Sakov claims that Pentium has undergone a tremendous amount of testing: over ten times the presilicon testing done on the i486, and over seventy-five billion testing sequences on Pentium components. ("That's billion with a 'b,'" he emphasizes.) Moreover, despite it's increase in processing potential, much of Pentium's compiled silicon comes from a proven design. While its floating-point processor is new, the two integer units are basically i486 processors. Therefore, the high-level models for the two chips are very similar. All of this should contribute to increased reliability.

There are also those uncommon features I mentioned above. Reportedly at Novell's suggestion, Intel developed parity checking on Pentium's internal circuits. Should an occasional gamma ray butt in, the chip knows it. The silicon also features built-in circuits for master-checker operation. This allows a system designer to use a redundant CPU to check a primary CPU's operation. Pentium has an inherent understanding of this role, and knows to raise a flag on errors when operating as the second CPU. These

The #1 Source For Network Solutions!

NETWARE 4.0

NetWare 4.0 expands NetWare 3.11's proven networking architectures to provide leading-edge global administration, security, and multi-lingual services designed to meet the specialized needs of integrated, multi-server, corporate-wide computing environments. New features include:

- Server based data compression doubles disk space without compromising performance.
- New security auditing capabilities that utilize public key cryptography.
- Improved WAN performance using packet burst and Large Internet Packet means faster response and lower bandwidth utilization.
- New Windows based graphical administration tools enhance productivity.
- New upgrade utilities ease upgrades from 2.x or 3.x version.
- Core memory protection ensures stable operations.
- Built-in support for CDROMs.
- Directory Services reduce administrative costs in multi-server environments.

FREE CD-ROM

Buy NetWare 4.0 (25 users or higher) and get the SyDOS Personal CDROM player absolutely free! Call for prices on all versions of NetWare 4.0. Limited time offer.

LONG DISTANCE REPEATER

Tutankhamon offers low cost alternatives to spanning ethernet networks using single pair UTP wiring. All repeaters are compatible with IEEE 802.3 CSMA/CD networks (Ethernet) and operates at the full 10Mbits speed. Several models are available for linking coax and/or 10BaseT networks up to 1,500ft apart. Using a combination of 3 repeaters and thin coax cabling, you can span a network up to 4,600 feet without degrading performance or reliability. Supports NetWare IPX/SPX, TCP/IP, and Apple Ethertalk.

- Ideal for linking different floors in a builing or linking multiple buildings in a campus like environments such as office parks.
- Cost effective alternative to running Fiber Optics.
- Uses existing voice grade phone cables.
- Superior noise rejection ratio improves data throughput making this ideal for high noice environments suchs as factories.
- No need to pull new cable.

Call for additional specifications and prices.

SERVICES

- Complete Turn Key Solutions
- Complete System Integration
- Software & Hardware Training
- Consulting & Project Management
- On-site installation
- Telephone support
- Professional Service Contracts

Novell Authorized Reseller

SCO AUTHORIZED RESELLER

NOVELL PRODUCTS

NetWare 3.11

5 Users	$592
10 Users	$1,349
20 Users	$1,889
50 Users	$2,700
100 Users	$3,616
250 Users	$6,460

NetWare 2.2

5 Users	$484
10 Users	$1,078
50 Users	$2,065
100 Users	$3,099

LANalyzer for NetWare	$760
Lan Workgroup 5-Users	$1,125
Lan Workgroup 10-Users	$1,866
Lan Workgroup 20-Users	$2,613
Lan Workplace For DOS v4.0 1-User	$305
Lan Workplace For DOS 10-User	$1,517
NetWare Flex/IP v1.2	$1,505
NetWare for Mac 5/20	$377/675
NetWare NFS v1.2b	$3,257
NFS Gateway 5/10/20	$1,132/1,883/2,638
NetWare NFS Starter Kit	$1,143
NetWare WanLinks v2.0	$1,128
NSE Pro Annual Subscription	$995

Microdyne NetWare Access Server:

4-port/10BaseT or BNC	$6,517
8-port/10BaseT or BNC	$10,139

Santa Cruz Operation

SCO Unix Oper. Sys. (2 Users)	449
SCO Unix Oper. Sys. Multiuser	977
SCO ODT Personal Sys. (CDROM)	1,066
SCO ODT Server	2,219
SCO ODT Lite	Call

OUR COMMITMENT TO EXCELLENCE

When designing your network, accept no compromise

- **Don't compromise on service.** The foundation of our company is built on superior customer service. You should expect excellent service, it's a standard for us.
- **Don't compromise on technical expertise.** We are primarily a networking company. We provide a full range of services for all your networking needs. Our approach shows in our exceptional expertise of networks and networking solutions. And of course, we are Novell & SCO Authorized.
- **Don't compromise on value.** We only recommend solutions which will meet your needs. You can be assured that our networks will be the best value for your money.

NETWORKABLE CD-ROM

Micro Design International offers a complete line of networkable CD-ROM, WORM, DAT, & Optical Jukeboxes. SCSI Express offers seamless integration of multiple CD-ROMs to your Novell NetWare file servers. Disc appears as standard NetWare volumes resulting in superior performance through the use of NetWare's built-in features including caching, elevator seeking, and directory hashing. Compatible w/ ISO 9660 & High Sierra. Data Transfer Rate of 327 KB/sec; average seek time 200ms using the Toshiba multispin CDROM drive.

SCSI Express w/ 1 CDROM	1,875
SCSI Express w/ 2 CDROMs	2,021
SCSI Express w/ 3 CDROMs	2,745
SCSI Express w/ 4 CDROMs	3,465

Includes external drive and software. SCSI adapter sold separately.

SCSI Express software only for selected third party SCSI CD-ROM drives.

For NetWare 2.15/2.2	470
For NetWare 3.11 5/10/20 Users	936
For NetWare 3.11 50/100/250	1,370

UNIVEL PRODUCTS

UnixWare

New Lower Prices! Now bundled with Windows Merge!

UnixWare, developed by the Novell and Unix Systems Laboratories (USL) partnership, unleashes the combined power of Novell and Unix to provide users with the unrivaled multi-tasking and multi-user strengths of Unix to the Novell environment. Built on the new Unix System V, Release 4.2, it can run any Unix application and comes with the newest verison of the X Windows network windowing system, X1145 and both Motif-based and Open Look-based GUI front ends.

Personal Edition (Cd-Rom/Tape)	**$185**
Application Server (Cd-Rom/Tape)	**$975**

- Provides all the features of Personal Edition and adds multi-user and server packages, including TCP/IP and NFS support.

Personal Utilities for Pers.Ed.	**$300**
TCP/IP & NFS for Pers. Ed.	**$223**
Encryption Encoding Capabilities	**$95**

NETWORK INNOVATIONS
90 South Spruce Ave., Suite N
So. San Francisco, CA 94080
Phone (415) 872-1377
24 Hr. Fax/Voice (415) 872-6634

NETWORK INNOVATIONS
(415) 872-1377

PROVIDING NETWORKING
SOLUTIONS SINCE 1987

• BEST MEMORY PRICES • HIGHER QUALITY
• SAME DAY SHIPPING • FREE REPLACEMENT WARRANTY

SIMM'S

1x9-10 3 Chip/9 Chip	$28/29
1x9-80 3/9 Chip	30/35
1x9-70 3/9 Chip	34/37
1x9-60 3/9 Chip	35/37
1x8-80 8 Chip	32
1x8-70	33
1x8-60	34
4x9-60	149
4x9-70	139
4x9-80	129
4x8-70 8 Chip	125
4x8-80 8 Chip	120
256x9-80	9
256x9-70	10

DRAM'S

1x1-80	$\$3^{99}$
1x1-70	3^{99}
1x1-60	4^{99}
256x4-80	3^{99}
256x4-70	3^{99}
256x4-60	4^{99}
256x1-15-12-10	1^{50}
256-70	1^{75}
4464-80	1^{65}
4464-10	1^{59}

CPU CHIPS

80386DX-16/20/25/33	$29/39/49/69
80486DX2-50/66	389/499
80486DX-25/33	255/259
80486SX33/25	230/129
80386DX40	69
386DX40 w/Socket	57
80286-8/10 (PLCC)	8/10
80286-12/16 (PLCC)	6/10
V-30-10 V-30/20-10	CALL

SPECIAL MATH CO-PROC

INTEL 80387DX-20	$30

MATH CO-PROCESSOR

INTEL	
8087-5 MHz	$19
8087-2 8 MHz	59
8087-1 10 MHz	79
80287-6 6 MHz	20
80287-8 8 MHz	29
80287XL 12 MHz (Laptop)	69
80287-10 10 MHz	35
80C287-12 MHz	35
80387SX-16,20,25	79
80387DX-16,20,25,33	79
80387DX-20 (Tube)	30
WEITEK	
3167-20 20 MHz (Tube)	$29
3167-25 25 MHz	99
3167-33 33 MHz	250
4167-25 MHz	325
4167-33 MHz	550
CYRIX	
83D87-40 40 MHz	$79
83D87-20 20 MHz	69
83D87-25 25 MHz	69
83D87-33 33 MHz	69
83SX87-16 16 MHz	39
83SX87-20 MHz	69
IIT	
8C87-8	$39
80C287-10	39
80C287-12	49
80C387SX-33	69
8C387-20	59
8C387-25	59
8C387-33	69
8C387DX-40	69
ULSI	
US 83C87 16/20 MHz SX	$59
US 83C87 20/25 MHz SX	59
US 83C87 25/33 MHz	59
US 83C87 40 MHz	59

EPROMS

2764-200ns	$\$2^{75}$
27C64-200ns	3^{50}
27128-200ns	3^{00}
27128-150ns	5^{00}
27256-200ns	3^{50}
27C256-200ns	3^{75}
27C512-200ns	6^{00}
27C020-150ns	13^{00}

1x4 4x1 STATIC

514402-80 (1x4) STT,ZIPP	$17
514400-80 (1x4) ZIPP	17
514400-80 (1x4) DIPP	18
514400-80 (1x4) SOJ	CALL
514100-80 (4x1) SOJ	CALL

COMPAQ MEMORY

DeskPro 386/20e, 20, 35e, 25 286e	
1 MB Module	$175
4 MB Module	165
DeskPro 386/20e, 25e	
1-9 MB Exp Brd	140
4-12 MB Exp Brd	269
DeskPro 386s-16	
1 MB Module	89
4 MB Module	179
1-9 MB Exp Brd	159
4-12 MB Exp Brd	240
DeskPro 286N, 386N, 386SX/20	
2 MB Module	75
4 MB Module	175
DeskPro 386N, 386SX/20	
2 MB Module	118
DeskPro 286N, 386N	
0-4 MB Exp Board	175
DeskPro 386/33SL, 486/25, 486/33L System Pro	
2 MB Module	139
8 MB Module	239
32 MB Module	1700
DeskPro 386/16	
1 MB Kit	89
1 MB Exp Brd	229
2 MB Exp Brd	329
4 MB Kit.	CALL
4 MB Exp Brd	425
8 MB Exp Brd	725
Portable 386	
1 MB Kit.	189
4 MB Exp Brd	319
4 MB Exp Brd	322
Portable LTE (8086)	
512K Module	CALL
Portable LTE/286	
1 MB Module	89
2 MB Module	149
4 MB Module	425
Portable SLT/286	
1 MB Module	169
4 MB Module	349
Portable SLT/386	
1 MB Module	169
2 MB Module	189
4 MB Module	310
Portable III	
512K Kit.	55
2 MB Kit.	139

IBM PS/2 MEMORY

Mdl 30/386, Exp Brd	
512K Kit	$54
2 MB Kit	89
Mdl 70-061; -121; 55SX; 65SX: Exp Brd	
1 MB Module	69
Mdls 70-061: E61: 121: 50Z, 55LS, 55SX: 65SX: P70:	
2 MB Module	85
Mdls 70-A21: A61, B21, B61	
2 MB Module	99
Mdls 55SX: 65SX: 55LS, 65LS	
4 MB Module	159
Mdls 80-111; 121, 311, 321	
2 MB Card	99
Mdls 80-A21; A31	
4 MB Card	215
Mdls 80-A21: A31	
4 MB Card	215
Mdls 90; 95	
2 MB Module	159
4 MB Module	259
Mdls 50 & 60	
2-8 MB Exp Brd.	275
Mdls 70 & 80	
2-8 MB Exp Brd	325
2-14 MB Exp Brd	450
4-16 MB Exp Brd	475
Adapter	
2 MB Module	CALL
PS/1 Home System	
512K Upgrade	CALL
2 MB Upgrade	CALL

TOSHIBA PORTABLE MEMORY

T1200XE	2 MB Card	$89
T1600	2 MB Card	99
T3100SX	2 MB Card	85
	4 MB Card	169
T3100e	512K Card	CALL
	2 MB Card	85
T3200SX	2 MB Card	89
	4 MB Card	CALL
T3200	3 MB Card	175
T1000SE; XE	1 MB Card	89
T5100	2 MB Card	99
T5200: 8500	2 MB Card	99

STATIC ZIPPS

1x4 70ns DIPP	$17.00
256x4 10/80/70	$9.00
Video Zipps	

CACHE MEMORY

32x8-25	$4.25	8x8-20	$2.75
32x8-20	5.25	8x8-25	2.25
32x8-15	6.00	8x8-15	3.99
32x8-12	CALL	16x4-25	2.25
64x4-25	6.00	16x4-20	2.75
64x4-20	7.00	16x4-15	2.25
64x4-15	10.00	128x8-25	32.50
64x1-20	6.75	128x8-20	CALL
64x1-15	6.75	128x8-15	CALL

72 Pin SIMMS

2 MB 604-80ns	$69
4MB 1x36-80ns	139
8MB 2x36-80ns	259
16MB 4x36-70ns	560

COMPAQ MEMORY

Model	P/N	
LTE 286		
2 MB	117081-002	$115
4 MB	117081-003	175
SLT 286		
4 MB	110237-001	299
LTE 386S/20		
2 MB	12125-001	119
4 MB	121125-002	195
Contura Lite 20/25		
2 MB	129769-001	105
4 MB	129769-002	155
8 MB	129769-003	295
Portable 386		
1 MB	107651-001	109
4 MB	107653-001	299
Portable III		
2 MB	10-7332-001	79
EBD	167811-001	199
SLT 386		
2 MB	118304-001	119
4 MB	118305-001	185
Deskpro 386S (E. Board)		
4 MB	11364-001	239
4 MB	112534-001	169
Deskpro 386/33L, 486/33L, 50/25		
2 MB	115144-001	99
8 MB	116561-001	335
32 MB	116568-001	1275
6 Socket E Board		CALL
Deskpro 386/20e, 25e (E. Board)		
4 MB	113645-001	99
8 MB	116561-001	335
32 MB	116568-001	1275
Deskpro 386/20e, 25e (E. Board)		
4 MB	113645-001	239
Deskpro 386/20,20e,25e		
4 MB	113132-001	169
Deskpro 286N, 386N, 386SX/20, 386/25M, 486/33M, 486S/25M, 486S/16M		
2 MB	118689-001	95
4 MB	118690-001	145
8 MB	128877-001	294
Deskpro 486/33L, 486/50L, 386/33L		CALL
Prolinea 3/255 & 3/252S		
2 MB	141738-001	105
8 MB	141742-001	375
Prolinea 4/33		
2 MB	141682-001	95
4 MB	141684-001	159
8 MB	141685-001	299
Other Models		CALL

IBM PS/2 & PS/1 MEMORY

PS/1 286/386SX	2/4 MB	$95/149
PS/1 Consultant Essential/Expert	1/2/4/8 MB	45/79/155/299
386 Valuepoint	2/4/8 MB	89/159/305
486 Valuepoint	4/16 MB	169/595
PS/2 30-286	2 MB	89
50Z, 55SX, 65SX, 70	2/4 MB	79/145
40SX, 35SX,35SL	2/4 MB	79/149
70A21, A61, 121	2 MB	109
80-11, 121, 311	4 MB	210
95,90,P75, PS/1 Pro	2/4/8 MB	110/149/305
16 Bit Exp Bd For 50, 50Z, 60, 65SX	0K	144
32 Bit Exp Board for all 70 & 80 models	0K	164
RISC 6000	16/32/64 MB	745/1490/2890

LASER PRINTER MEMORY

Price Includes Memory, Board & Installation Instructions

IBM LASER	
4019/4019E 1/2/3.5 MB	$89/119/169
4029 (All Model) 4 MB	139
EPSON LASER	
6000-2/4MB	$114/175
7000-2/3 MB	125/159
Action LaserII -2/3/4/5 MB	108/139/169/199
HP LASER	
HPII/IID 2/4 MB Board	$105/169
HP 4/4M 4/8MB	149/289
HP IIP,IIP+,III,IIID, IIIP 1/2/3/4	60/95/134/159
IIsi 4/8 MB	138/264
LaserJet Fax 1 MB	82
DeskJet 500/500c 550C 256K	52
Design Jet Plotter 4 MB	144
PANASONIC LASER	
KXP4410/KXP4430 1/2/3/4 MB	$89/115/149/184
KXP4420/4450/4451 1/2/3/4 MB	79/108/139/169
KXP4450 1 MB	111
KXP4455 2 MB	129
OKI LASER	
OL400 1/2 MB Board	$84/106
OL800/820 2/4 MB Board	107/165
OL810 2/3/4 MB Board	145/179/219
QMS LASER	
PS 410 2/3/4 MB	$119/165/189
PS 860, 1700 1/4/8 MB	53/133/166
PS 815, 825, 815MR, 2/4/6	168/232/295
SHARP LASER	
9500PS 1 MB	$55
JX-9500/9700 1/1.5/2.5/4	105/135/188/344
OTHERS	
Apple Laserwriter II/IINT/IINTX 4 MB	$149
Brother HL-4 2/3/4 MB	119/165/189
Brother HL-8E V 1/2 MB	99/139
Compaq Pagemarq 15 & 20 1/4/8	49/139/266
Fujitsu RX7100/7200 1/2 MB	185/245
Kyocera F800, F800Am F800T 2/4	95/137
NEC Silentwriter 90/290	99/124
NEC Silentwriter 95 2 MB	104

AST MEMORY

Bravo 3/33(LC) 325S	2/8 MB	$84/299
Bravo 486/25 & 4/33	2/8 MB	109/309
Bravo 486LC	4/8/16 MB	145/295/565
Cupid-32 Board	0K	219
Premium 386C	4 MB	145
Premium SE 450	4 MB	145
Premium 386/25, SX,33,486/25	1 MB	40
Premium II 386, 486	1/4 MB	37/145
Executive Notebook	4 MB	134
Other Models		CALL

SUN MEMORY

SPARC SLC	4 MB	$145
3/60, 80, 4/40, 60, 65	4/16 MB	139/495
SPARC 1 &1+, 1Pc	4/16 MB	140/499
SPARC 10	16/64 MB	645/CALL
SUN Classic	16 MB	625
SPARC Server 630np	64 MB	2285
SUN IPX, ELC	4/16 MB	175/555
SPARC II	16 MB	560
Other Models		CALL

C.B.
Memory & Computers
1319 Jacklin Rd. • Milpitas, CA 95035
(Jacklin Exit Off 680)
TEL: (408) 946-5174 or 946-5175
Fax: (408) 946-5376

BUSINESS SOLUTIONS

features make Pentium a supremely dependable chip, and systems designed around it could satisfy the demands of more critical applications.

However, they may not make that much difference on the average network. According to Michael Slater, editor in chief of *The Microprocessor Report*, "A master-checker pair is not the type of thing you're going to see in any mainstream systems." For one thing, he points out, a redundant system capable of not only detecting, but responding to, a fault requires two chip pairs. (You need a second pair to back up the first pair when they fail.) Slater also discounts internal parity checking due to the remote likelihood of the errors it's designed to detect.

If master-checker pairs and internal parity aren't the stuff of the mainstream, then where will Pentium fit? Intel intends it to land in the middle of the workstation and server markets. In particular, the chip is expected to appear in multiprocessing systems. Running one hundred users on a multiple-processor server can bring networks to new levels of performance. That's because multiprocessing simultaneously executes multiple tasks. (Multitasking only gives the appearance of simultaneity through time division.) These tasks can be user requests, system services, or even application services based on GUI accelerators, device drivers, and other modules—anything that can be partitioned.

Of course, multiprocessing PCs aren't mainstream either—today. But the need that multiprocessing satisfies is broad, and such machines will be mainstream once their economics allow. I expect that will happen fairly soon for server applications because the tradeoff can be a network with fewer servers.

COMING NEXT MONTH

Are there competitors for multiprocessing servers? Are servers based on competing non-Intel compatible chips likely to appear running NT or an alternative that fits into its place in the picture Microsoft is painting for America's corporations? "i.e., will there be a viable alternative hardware system running Microsoft's Windows applications?" Next month, I'll take a look at the likelihood, when you should expect to see the first systems based on Pentium, and how much you can expect to pay for them initially. ■

"The Ultimate Multimedia Experience"

NEW MEdia COMPUTER

GRAND OPENING

•Over 200 CD ROM Titles from which to choose!
Try before you buy!!!
•Over 20 choices of CD ROM Drives
•Knowledgeable Sales Staff
•Friendly Service

Has anyone ever really explained what MULTIMEDIA is? Or how you might use it? NEW MEdia will!

•Several Multimedia machines on Display!
•We want to educate you in the World of Multimedia
•Our SPECIALTY is Customer Satisfaction!
•We have access to over 10,000 products

Large Selection of:
•Sound Cards •Hard Drives •Motherboards
•Tape Backups •Multimedia Accessories

We're NEW, we're HOT, and we're ready to take on the competition with SERVICE, SELECTION, and SUPER DEALS !!!!

JUST SOME OF OUR SPECIALS

120MB
IDE Hard Drive
$159.95

Creative Labs SoundBlaster
$54.95

BROTHER
Power Note
Work Organizer
$149

CD-ROM
Internal Drive
w/Interface
$179.95

250MB
Tape Backup
Internal
$169.95

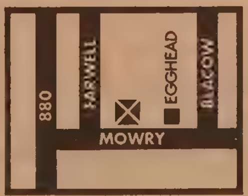
1.44 MB
3.5" Floppy
Drive
$39.95

Game Card
2 Ports for Joystick
$9.95

Labtec Speakers
Great Sound
$16.95

IDE 2Hard 2Floppy Controller
$13.95

NEW MEdia COMPUTER
5201 Mowry Ave.
Fremont, CA 94538
(510) 494-0188
FAX (510) 494-1488
STORE HOURS: Mon–Fri 9–8
Sat 9–7 • Sun 10–6



•CORPORATE CUSTOMERS WELCOMED • USUALLY 24 HOUR TURN-AROUND SERVICE

Not responsible for typographical errors
Prices may change without notice
Quanities may be limited

Back To The Bourne Shell

The Shell [Script] Game

BY DAVID HAWKINS

I recently took a new job and inherited a lot of scripts to improve and maintain. Most of the them were C Shell (/bin/csh) scripts. I decided to convert everything to Bourne Shell (/bin/sh), partly because my company is standardizing on Bourne shell scripts, with portability being one significant benefit. Also, I've always found the Bourne shell easier to write scripts in.

So the following summarizes things I've learned about the process. And I did keep a copy of the original scripts around, just in case.

THE SIMPLEST CHANGE

A lot of scripts have nothing to distinguish them, so I added a first line of

```
#!/bin/sh
```

Then if I or others go back to edit them, we can work with a Bourne shell syntax. This is the case where the basic script is just a list of UNIX commands. If the script becomes more complex, some error checking and flow control will probably be added, and these should be done using a Bourne shell syntax.

UNIX

By the way, putting in the **#!/bin/sh** line removed a common problem where the user had aliased the "rm" command to "rm -i". The script was depending on the normal behavior of rm and worked fine as a Bourne shell since it has no aliases.

MORE COMPLEX CHANGES

Next, I went through and found every line that started with "set", like:

```
set query = "Stored Text"
```

and changed them to

```
query="Stored Text"
```

Notice the "set" and the spaces around the "="are removed.

Mathematical expressions like

```
@ z = $x + 1
```

become

```
z=`expr $x + 1`
```

After that I reworked the decision sections, changing the syntax of the "if" statements. [See chart for syntax differences.] Actually, I turned almost all the csh "if" operations to the sh "case" construct. If the scripts had used the csh "switch" statement, I would have converted it to "case" as well.

THE FLOW OF THE PROGRAM

The original script I worked with was over six hundred lines long, which became unwieldy. The script was hard to read and follow—partly because it used the "goto" command.

To make things easier on myself and those who follow me in using this script, I decided to break the script into three parts. The first two hundred lines of the script became the "master" script—the one that is invoked by the user. All it does is collect the command line, check the validity of the arguments, check that the system is set up correctly, and then invoke the next two scripts as needed.

At the end of the master script is a "case" statement that looks like

```
case "$(party)" in
republican) echo 'Republican Party setup'
. setup_republican.sh ;;
democrat) echo 'Democratic Party setup'
. setup_democrat.sh ;;
*) echo 'All-in-One Party setup'
. setup_republican.sh
. setup_democrat.sh ;;
esac
```

The **setup_republican.sh** and **setup_democrat.sh** scripts then take on smaller tasks. One of them hasn't changed at all for a while, and I've had to make no modifications to that script. The other has changed and I can work on it as a smaller, simpler piece of code.

Using the "." means that the subscripts are executed as a part of the master script and inherit all its memory variables and changes. Using the case statement allows me to have more flexibility in case I need **setup_newparty.sh** someday.

DEBUGGING ISSUES

Breaking the script into three parts greatly simplified the debugging process. Since the master script just does error checking and setting environment variables, it's pretty straightforward. I had the subscripts echo their names when they are invoked, so I can chart how far into the process the script got. When errors showed up, I would put

```
set -x
```

at the start of the suspect section so I could see what commands were being executed. I could turn that flag off with

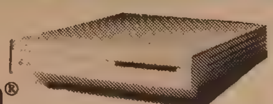
```
set +x
```

for other sections that I knew worked. I also had a lot of echo statements throughout the program, and would add echo commands that showed the state of the variables when I was in doubt about whether they'd been set correctly.

My scripts use a few temporary files. I remove all the old temporary files when the script starts. I do not clean up afterwards, since the next invocation will clean them

Copyright © 1993 by David Hawkins. All rights reserved.

Authorized Dealer

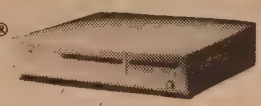


Apple® Macintosh® LC III 4/80

- 25MHz 68030 Processor - 32 bit data bus twice as fast as LC II
- 4MB exp. to 36MB
- Built in color support up to 16" color displays
- RAM Disk for fast data access

Monitor sold separately

$1199



Apple® Macintosh® Centris® 610 4/80

- 68040 Processor - 32-bit data bus up to twice as fast as IIci & IIvx
- 4MB RAM exp. to 68
- Built in color support for all Apple® displays
- Optional Onboard Ethernet
- Ram Disk for fast data access

Keyboard & Monitor sold separately

$1575

Apple® Macintosh® Centris® 650 4/80

- 68040-25MHz Processor - 32-bit data bus
- 4MB RAM exp to 68
- Built in color support for all Apple® displays
- 3 expansion slots
- Optional Onboard Ethernet
- Ram Disk for fast data access

Keyboard & Monitor sold separately

$2240

Apple® Macintosh® IIVX 5/80	$1595
Apple® Macintosh® IIVX 5/80 w/CD ROM	1960
Apple® Macintosh® Quadra™ 800 8/230	CALL
Apple® Macintosh® Quadra™ 950 8 MB RAM	CALL
PowerBook Duo™ 210 4/80	CALL
PowerBook Duo™ 230 4/80	CALL
PowerBook™ 145 4/80	2189

PowerBook™ 160 4/80	$2299
PowerBook™ 165C 4/80	2999
Apple® Stylewriter® II	310
Apple® LaserWriter® Pro™ W/Photo Upgrade	1835
Apple® LaserWriter® Pro™ 630	2235
Apple® Macintosh® LC III 4/80	1199
Apple® Macintosh® Centris™ 610 4/80	1575

Apple® Macintosh® Centris™ 610 8/230 w/CD-ROM	$2430
Apple® Macintosh® Centris™ 650 8/230 w/CD-ROM	3330
Apple® Macintosh® Classic® II 4/40	875
Apple® Macintosh® Color Classic® 4/40	1299
Apple® Macintosh® Monitors	IN STOCK

Apple, the Apple logo, Macintosh, Classic, Stylewriter, and LaserWriter are registered trademarks of Apple Computer Inc. PowerBook, Macintosh Quadra, Powerbook Duo, and Macintosh Centris are trademarks of Apple Computers, Inc.

HEWLETT PACKARD

Authorized Dealer

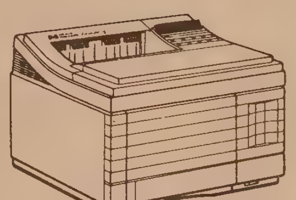
HP PRINTERS

HP LaserJet 4L	$CALL
HP DeskJet Portable	$325
HP DeskJet 500 C	485
HP DeskJet 550 C	695
HP DeskWriter 550 C	695
HP DeskWriter C	485
HP DeskWriter	319
HP DeskJet 500	349
HP LaserJet IIP Plus	770
HP LaserJet IIIP	855
HP LaserJet IIIP Postscript® w/Appletalk®	CALL
HP LaserJet 4si	CALL
HP ScanJet IIc	CALL
HP ScanJet IIp	699
HP Fax 310	CALL
HP Fax 200	CALL
HP Fax (Demo)	699

DeskWriter 550C Printer

- Affordable 300dpi black and color printing on plain paper, transparencies, glossy paper, and envelopes
- Easy integration with Mac and all Mac applications
- 35 scalable fonts
- 3 Year limited warranty

$695



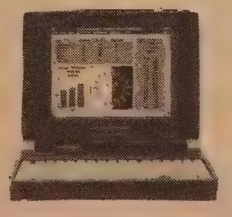
HP LaserJet 4

AppleTalk® compatibility with optional interface.
Dependable HP performance.

CALL

COMPAQ®

Authorized Dealer



Compaq Contura 3/25

- 386SL
- 4MB RAM
- 84MB Hard Disk
- DOS
- Windows
- Winworks
- Trackball
- PFS

$1475

Every Prolinea bundled with DOS, Windows, Mouse!

Prolinea 3/25S M84, Bundle	$912
Prolinea 3/25S M120, Bundle	975
Prolinea 4/33 M120, Bundle	1570
Prolinea 4/33 M240, Bundle	1760
Prolinea 4/50 M120, Bundle	1895
Pagemarq 15 PPM	CALL

Every Contura bundled with DOS, Windows, Trackball PFS: Windows Works!

Contura 3/25, M84, Bundle	$CALL
Contura 3/25, M120, Bundle	CALL
Contura 3/25C, M84, No PFS	CALL
Deskpro 4/251S M84, Bundle	1670
Deskpro 4/251S M120, Bundle	1775
Compaq Monitor 14" SVGA .28dp	349

IBM

Authorized Dealer

IBM® ThinkPad™ 300
386 SLC-25MHz w/64K
4MB RAM, 80/120MB HD
DOS 5.0, & Windows **CALL**

IBM® ThinkPad™ 700
486 SLC-25MHz
4MB RAM, 80/120MB HD
STD LCD, 16 bit VGA screen
DOS 5.0, & Windows **CALL**

IBM® ThinkPad™ 700C
486 SLC-25MHz
4MB RAM, 80/120MB HD
Color TFT, 16 bit VGA
DOS 5.0, & Windows **CALL**

Model 56SX-045
386SX-20MHz, OS/2 v2.0
4MB RAM, 80MB HD
2.88 Floppy Drive & Mouse
$799

Model 56-0B6
486SLC2-25/50MHz OS/2 v2.0
8MB RAM, 120MB HD
2.88 Floppy Drive **$1675**

Model 56-0BA
486SLC2-25/50MHz OS/2 v2.0
8MB RAM, 212MB HD
2.88 Floppy Drive **$1875**

MODEL-70
386-20MHz
4MB RAM, 80MB HD $695

14" Color Monitor #6314 .... $420
15" Color Monitor #6319 .... $535

We are an Authorized IBM Computer & Service Center.
Call for IBM products not listed.

NEC
EPSON®
OKIDATA®
TOSHIBA
Authorized Dealer

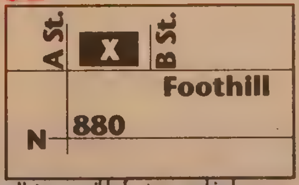
ComputerLand of Hayward

BUSINESS TO BUSINESS • • PERSON TO PERSON

22540 FOOTHILL BLVD. HAYWARD, CA 94541

Tel: 510/538-8080

Hours: M-F 8:30-6 Sat 11-5 Prices reflect a cash discount.



Not responsible for typographical errors.
Prices subject to change without notice.

intel inside

Quality You Can Count On!!!

BOLD

DATA TECHNOLOGY, INC.
Computer Systems
Components
Peripherals

BDT-486SX-33 MHz

- BDT Basic Package
  BDT 486SX-33 Motherboard
  BDT 486SX-33 CPU on board
- AMI Bois
- Baby AT DeskTop or Mini Tower Case With 230W Power Supply

$1,109

BDT-486SX-25Mhz

- BDT Basic Package
- BDT 486SX-25 MotherBoard
  Intel 486SX-25 CPU on Board
- AMI Bois
- Baby AT DeskTop or Mini Tower Case With 230W Power Supply

$1,059

BDT-486DX-33Mhz

- BDT Basic Package
- BDT 486DX-33 MotherBoard
- Intel 486DX-33 CPU on Board
- 64K Write Back Cache
- AMI Bois
- Mini or Medium Tower Case With 230W Power Supply

$1,289

BDT-486DX-50Mhz

- BDT Basic Package
- BDT 486DX-50 MotherBoard
  Intel CPU on Board
- 256K Write Back Cache
- AMI Bois
- Tower Case With 250W Power Supply

$1,439

All Basic Systems Include:

- 4MB of 70ns RAM
- 1.2 and 1.44 Floppy Disk Drive
- 80MB IDE Hard Disk Drive
- 2 FDD and 2 HDD 1:1 IDE Controller
- 2 Serial, 1 Parallel and 1 Game Port
- VGA Card with 512K on Board
- 14" VGA Monitor
- 101 Key Enhanced KeyBoard

Upgrade Options:

– 14" Super VGA Monitor with 1MB SVGA Card	+$195
– 14" Super VGA Monitor with Window Accelerator Card	+$250
– 120MB IDE Hard Disk Drive	+$60
– 200MB IDE Hard Disk Drive	+$240

BOLD DATA TECHNOLOGY

The Intel Logo is a Registered Trademark of Intel Corporation

920 Auburn Ct.
Fremont, CA 94538
Tel: (510) 490-8296
Fax: (510) 490-9428

13200 Brooks Dr. Suite H
Baldwin Park, CA 91706
Tel: (818) 338-2878
Fax: (818) 338-1178

out. Then, if the script bombs, I can examine the temporary files to see what was going on in them. In this particular instance, the files are small and disk space is not an issue.

I also have the script save the manner in which it was invoked and the date to a log file. Then if a user complains, I can see what they were typing in to start the script. It is not uncommon for others to use the scripts in ways I did not intend or even consider. Sometimes this method allows me to add features or fix bugs before I get any reports.

COMMON ERRORS

The most common error I get involves adding a new selection to a "case" statement and forgetting to put ";;" on the end of that command section. Other things to check for include:

an "if" without "fi"
a "case" without "esac"
unmatched quotes
a "do" without "done"

PORTABILITY ISSUES

My scripts have to run on several types of platforms, but mainly on HP (SysV) and Sun (BSD). I tried to use commands that work exactly the same as much as possible. One way I avoided conflicts was to set the PATH environment variable with

```
PATH=/usr/5bin:/bin:/usr/bin:$HOME:$script_dir:.:/etc
   export PATH
```

The /usr/5bin means that on SunOS, the script will pick up a directory of Sun's SysV commands before getting to the BSD versions. The HP will not find that directory and will skip over it when I run the script on HP. The /etc was necessary for the Sun, since that's the directory where it stores the "chown" program.

Parts of the script do test for what type of operating system they're running on, and change command names and variables accordingly. I just used the case command to check for HP first, and then use the BSD commands otherwise.

REFERENCES

Once I have a set of working Bourne shell scripts, I can turn them over to a user and just give *The UNIX Programming Environment* as a reference.

And if they want to know why I don't use the C shell, I can refer them to *UNIX Power Tools* and the chapter on "Programming in C Shell Considered Harmful" by Tom Christiansen. ■

(UNIX columnist Bennett Falk is on vacation, so David Hawkins, his esteemed colleague at Sybase and a former MicroTimes columnist, volunteered to contribute a little something in his absence.—eds.)

RAMCOMP
THE COMPUTER PEOPLE...
690 Market Street-Suite 515 • San Francisco, CA • 94104

AST NEC AMI HEWLETT PACKARD Canon ALR intel SAMSUNG Panasonic

Monthly Special!

RAMCOMP VIDEO BLASTER $1650.00
• 486DX2-50MHz VESA VL BUS
• FULL TOWER CASE
• 1.44MB &1.2MB FLOPPIES
• GENOA VESA VL BUS VIDEO
• 14" MONITOR .28 DOT (1024X768)
• 200MB MAXTOR HARD DRIVE
• 101 ENHANCED KEYBOARD
• 1 PARALLEL / 2 SERIAL PORTS
FOR 486DX2-66MHZ ADD $100.00

SCO THE SANTA CRUZ OPERATION Authorized Dealer

SCO UNIX OS (2 USER)	$495
SCO UNIX OS (3+)	$895
SCO UNIX Dev. Sys.	$895
SCO X Window Complete	$495
SCO X Windows RTS	$295
SCO X Window Dev.	$295
SCO VP/ix Unltd (3+)	$650
SCO MPX	$695
SCO Portfolio	$495
SCO TCP/IP Dev. Sys.	$350
SCO TCP/IP RTS Unltd.	$495
SCO NFS	$495
SCO ODT Personal Sys	$995
SCO ODT Server Upgrade	$1188
SCO ODT Dev. Sys.	$1295

COMPUTERS
IBM, APPLE, COMPAQ AST, SAMSUNG, ALR, TOSHIBA, NEC, PANASONIC AND COMPATIBLES.
Call for Best Price & Configuration
Any Computer • Any Configuration

PLOTTERS

CalComp:	1023 A-D	$3675
	1025 A-E	$4775
	1044 GT AE	$9050
Houstin:	Dmp-61	$2975
	Dmp-62	$3495
IOLINE, ROLAND, HP		BEST PRICE CALL

LASER PRINTERS
NEC, HP, PANASONIC, TOSHIBA, QMS, QUME, APPLE
NEC Silentwriter .... BEST PRICE

MONITORS

Hitachi 19" Accuvue	Call
Nanao 9070S	Call
NEC 5D 19"	Call
Nanao 9070U	Call
NEC 4D	Call
Mitsubishi (All Models)	Call

We Carry All Other Models
Call For Lowest Prices

SOFTWARE
Call For Any Software

MEMORY
Call For Latest Prices On SIMMS, SIPPS, DIPPS, DRAMS, MATH CO.
Repair & upgrading, revamping on site for all computers
Minimum Charges

Novell Authorized Reseller

NETWORKING SOLUTIONS
In Local Area & Wide Area Networks

NEW INSTALLATIONS
Free evaluation of your needs & site inspection.
Turnkey jobs including installation of cabling system.
Ask for quotes.

UPGRADING THE EXISTING INSTALLATION
Adding storage to the server, changing the network architecture or topology. Installing a later version of Netware. (Free back up and restoration of data in any upgrade)

EXPANDING THE EXISTING NETWORK
Adding a server, adding new segments using repeaters, bridges & routers etc. Use the knowledge of our Netware engineers to route your bytes to their destination through the safest and most cost effective path without compromising speed and performance.

Hours: Monday-Friday 9am-6pm • Sat 12-5pm
Tel: 415-986-5125 Fax: 415-986-3677

A Chart Comparing Bourne Shell and C Shell Syntax

BOURNE SHELL	C SHELL
#!/bin/sh	#!/bin/csh
read	$<
trap	onintr
. <file>	source <file>
var_d="Text"	set var_d = "Text"
PATH=$PATH:/etc ; export PATH	set path = ($path /etc)

THE FLOW CONTROL COMMANDS:

for x in a b c do commands done	foreach x (a b c) commands end
case $x in a) command ;; b) command ;; *) command ;; esac	switch ($x) case a: commands breaksw case b:
commands	breaksw endsw
while <condition> do commands done	while (<condition>) commands end

if [comand list]
then
commands
fi
	if (test) then
	commands
	endif

This is a rough sketch of how the syntax differs. If you find a command or line like the one on the right, it can be converted to look something like its corresponding command on the left. The simplest example of the flow control commands (like "if") is shown. More complex "if" statements in the C shell can often be converted to the Bourne shell "case" construct. Some of the commands are not exactly the same function, but are more a suggestion about what to convert to.

CRASH
FATAL ERROR!
CORE DUMP
DEVICE NOT FOUND
HOST UNREACHABLE
SYS. ADM
COMPLAINTS
SYS. ADMIN

TAKE YOUR CHOICE:

Rivendell Technologies, Inc
UNIX & System Management for the '90's

- ○ Multi-Vendor Environments
- ○ UNIX / PC / Mac Integration
- ○ Servers / Workstations
- ○ Distributed Systems
- ○ Network Management
- ○ Administration Tools

Rivendell Technologies, Inc.
1111 West El Camino Real, Suite 109-348
Sunnyvale, CA 94087
E-mail:
rivendell@btr.com
(415) 961-8661

Local Area Networks
Concepts, Facilities & Installation
DOS & Windows™
Fundamentals & Tools

You've been thinking about it for awhile...
Call now to get more information on the classes that will give you the edge.

You'll be pleased you chose V.I.S.
We guarantee it.

Reasonable rates, with Group and Corporate Discounts available
Small Class sizes maximize attention to the individual participant
The Right mix of theory and real world applications
Quality Instruction & Hands On Experience
Conveniently located evening classes

If you are interested in learning about current industry terminology, performance issues, and building a solid LAN knowledge base then our high-profile, professional instructors will be covering the topics important to you.

V I S
VALUE INTEGRATED SYSTEMS, Inc.
Fax (510) 796-7132
(510) 796-6465

Novell Authorized Reseller

UNIVEL™
A Partnership of Novell and USL

SCO™
AUTHORIZED RESELLER

JUMP

JUMP MICROSYSTEMS, INC.
NETWORKING SPECIALIST

SBT®
CORPORATION

SunSoft
A Sun Microsystems Inc Business

Novell 4.0 & UNIVEL On DEMO

INTERLINK • MULTI-PLATFORM • OFFICE AUTOMATION

We Specialize in High-Technology and Office Automation Solutions!

SERVICES

- Novell Network Design, Cabling, and Installation
- Novell Authorized Enterprise CNE, Henry Lu
- Hardware Configuration and System Integration
- SBT Accounting Software Installation
- SCO Unix Operating System Installation
- PC X-window and PC/TCP Connection
- Development of Relational Databases
- TCP/IP Communications
- GUI and X-Window Graphics Products
- Interlink Specialist for IBM-UNIX-NOVELL

SPECIALS

Ethernet Cards TE-2000	$79
Netware Lite & NE2100 Adapter	$139
EtherLink III 3C509 16-Bit Adapter	$129

We carry the complete line of networking products from the manufacturers listed below. Please call for information on products not listed for pricing and availability of items.

NOVELL and Networking Products

Netware Lite	$69
DR DOS 6.0 (Network DOS from Digital Research)	69
Netware Lite w/DR DOS 6.0	89
LANtastic AE-2 Ethernet Starter Kit /Adapter	495/219
LANtastic A2MBPS Starter Kit /Adapter	365/142
Netware V2.2 (5/10/50/100)	569/1269/2544/3818
Netware V3.11 (5/10/20/50/100)	697/1588/2226/4995/6995
Netware 4.0 (5/10/20/50/)	CALL
Netware 4.0 Upgrades	CALL
LAN Workplace for DOS (TCP/IP Connection) (1/10 users)	299/1329
Netware for Mac (5/20/100 Users)	359/599/1995
Netware Upgrade /All Versions	Call for Details Special
Lanterm Netware monitor Ltd. /Ultd./LSM	2495/4495/4995
Multi Protocol Router	995
Netware E-Mail Global Messaging 10/50/100/250	995/2795/4795/6995
Netware MHS Personal 10/50/100/250	99/295/695/995/1595
Netware Wan/Link (PPP 12000-2.048Mbps, X.25 64K bps)	1295
Netware for NFS /NAS V1.2 /FTAM	4995/2395/4995
Netware for SAA 16/64/128/254 sessions	1995/5995/8495/9164
Microdyne Async. Comm. Server(4 Port 10 Base2/10BaseT/Token Ring/ 8pt 10Bs/10BT/ Token Ring)	6599/6599/6995/9895/9895/10,995
Microdyne Netware Access Server (10Base2/ 4Port)	6599

Netware-Ready Ethernet Cards

NE-1000/ Compatible (10BaseT or Coax)	$99/76
NE-2000/ Compatible (10BaseT or Coax)	163/99
NE-3200A /Microdyne 32Bit EISA Ethernet	699/621
3COM 3C509 Etherlink III (10BT/Coax) 5Pack	158/688
3C503 Etherlink II (10BT/Coax) 5pk	250/213/995/887
3C503-16 Etherlink II (10BT/Coax) 5pk	199/187/799/735
3C507 Etherlink/16 (10BT/Coax) 5pk	336/299/1390/1339
3C579 Etherlink III EISA (10BT/Coax) 5pk	299/1149
Gateway WINIM+ /Microdyne WINIM+ Adapter	699/690
Novell Sync V.35+ /Microdyne V.35 Adapter	999/595

Bridges, Concentrators, HUBS and Repeaters

Microdyne 10BT Concentrator, 8Port w-AUII Port	$399
Microdyne 10BT Concentrator, 8 Port w-BNC Port	435
Microdyne 10BT Concentrator, 16 Port w-AUI&BNC	698
10 BaseT Repeater 12RJ45+BNC+AUI; 8 Port	519/259

SynOptics

Premises Concentrator 3000N 12 slots Enet /3000NT Enet & Token Ring/ 3000 Enet, TR & FDDI	$1956/2382/3831
3030 Department Concentrator 4-Slots	827

American Power Conversion

APC Smart-UPS 600/900/1250	$420/655/899

UNIX/ Open System Products

Univel UnixWare (Novell & Unix Lab Company)

UnixWare System V Release 4.2, Personal Edition (P.E. for 386 Workstation include X11)	$189
Univel UnixWare SVR42, P.E. Utilities	199
UnixWare P.E. SVR42, TCP/IP&NFS add on	229/user
UnixWare SVR42 Application Server	999
UnixWare Software Development Kit (CD-ROM)	430
UnixWare Driver Development Tools (3 1/2" SDK add on)	258
UnixWare MTF (OSF/Motif) Development Tools (3 1/2" SDK add on)	299

Sunsoft/Interactive Unix System V/386

Unix System V Release 3.2 1.2 Users	$345
Unix System V Release 3.2 multiuser Extension	325
VP/ix (DOS under UNIX) OS/Multi-User	399/299
Application Platform (Unix VR3RunTime, VP/ix)	632
Network Platform (Unix VR3RunTime, VP/ix, TCP/IP)	851
Workstation Platform (Plus TCP/IP, VP/ix, X11 Rtm)	991
Workstation Developer (Plus X11 Dev. System	1995

SCO Santa Cruz Operation

Personal Unix Operating System V3.2.4	$452
Unix Operating System Multiuser V.3.2.4	951
Unix Development System V3.2.4 w/C-Compiler	951
SCO FoxBase+ for AT/ Run Time	899/372

NetWorth

Concentrator with Netware Application Engine NAE1	$4250
Concentrator with Application Engine w/ Netware NAE2	3525
Chassis for Series 4000 1/3/6/10 Slot	296/745/984/2195
Host Module: 10BaseT 12RJ45+AUI (UTPM12A)	1399
Host Module: 10BaseT 12R45+1Fiber (UTPM12F)	1569

IBM Token-Ring Products

IBM 16/4 Mbps Token-Ring Adapter	$812
3Com Tokenlink III, 16/4 (3C619 /3C679 EISA)	521/815
Compatible 16/4 Mbps Token-Ring Adapter	425

MAYNARD ELECTRONIC, INC.

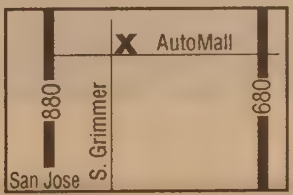
ARCHIVE XL 9250 250MB QIC EXT/INT.	$458/339
MAYNSTREAM 525Q/600CS/2200HS	$2412/1826/4602

JUMP

43446 South Grimmer Blvd.
Fremont, CA 94538

(510) 440-8006
Fax (510) 440-0703
Hours: M-F 9-6 SAT 11-4
ATM Pay Point

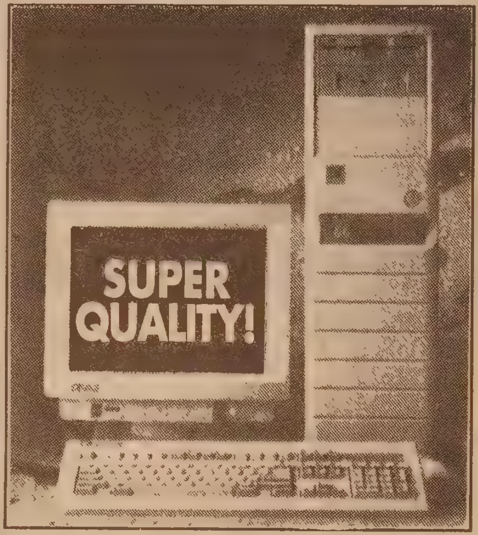
MasterCard VISA



HITRON SYSTEMS

STOP Searching Around...Why Look Around When You Can Spend Less Money And Get A Faster Performance Machine From HITRON?

Sound Like a dream? HITRON Will Make It Happen For You! When We Say We Can Save You Money...We Mean It!
Don't Believe It? Just Pick Up Thje Phone And Give Us A Call.
We Will Match Or Beat Any Of The Advertised Prices!!!



A SUPER BUY FOR SUPER QUALITY! HIGH PERFORMANCE VESA LOCAL BUS SYSTEMS USING AMI OR MICRONICS MOTHERBOARDS

486DX2-66 . $1805
486DX-33 .. $1595

INCLUDES:
- AMI or Micronics Motherboard
- 256K Cache
- 4 MB RAM
- 120 MB IDE Hard Drive
- 32 Bit IDE Controller Card
- 1.2 MB and 1.44 MB Floppy Drives
- 2 Serial/1 Parallel Ports
- 14" SVGA .28dp Monitor
- 32 Bit SVGA 1MB Display Card
- Mid-Tower Case w/230Watt PS
- 101 Enhanced Keyboard
- FOR OTHER OPTIONS...CALL

NETWORKING AVAILABLE!

COMPLETE LINE OF NETWORKING SOFTWARE AND HARDWARE, SOFTWARE INSTALLATION

NETWORKING START-UP KITS:
- 386 WORKSTATIONS
- NETWORKING CARD & HUB
- NETWORKING SOFTWARE & INSTALLATION

AS LOW AS $1200

FOR FREE ESTIMATES PLEASE CALL US!

SUPER COMPUTER PROTECTION $99.50

(WITH SYSTEM PURCHASE)

- Turns computer on/off at zero line voltage to extend its lifetime.
- Emits an audio warning for abnormal line conditions such as voltage or brown-out
- Automatically turns computer off for abnormal line conditions and power surges (This feature can be activated or inactivated at any time)
- Automatically turns computer off for power blink and black-out to prevent damage from sudden restoration of electricity.
- Automatically DELAY re-boot your computer when line returns to normal.
- Its electronic surge protection will never burn out.
- Adjustable current, quick response electronic circuit breaker turns computer off to prevent extensive damage from excessive current.
- Touch control, 1200 Watt output, and large toroid EMI and RFI filters (Patent Pending)

PERSONAL FINANCING AVAILABLE
*90 DAYS SAME AS CASH (w/o.c.)
*LOW MONTHLY PAYMENTS
*EASY TO APPLY
*FAST CREDIT DECISION
*CALL FOR DETAILS

*1 YEAR PARTS WARRANTY
*LIFETIME LABOR & TECH SUPPORT
*NATIONWIDE ON-SITE SERVICE AVAILABLE
*CORPORATE PO'S WELCOME
*CORPORATE LEASING AVAILABLE

90 DAYS SAME AS CASH!

HITRON HAS THE RIGHT SYSTEM AT THE RIGHT PRICE!

CLEARANCE SALE EVERY SATURDAY DON'T MISS IT!

MONTHLY SPECIAL
CONNER
250 MB HARD DRIVE
$289

90 DAYS SAME AS CASH!

MONTHLY SPECIAL
CONNER
120 MB HARD DRIVE
$185

HITRON FILE SERVER

486DX2-66 MHz EISA
$2305
486DX-50 MHz EISA
$2234
486DX-33 MHz EISA
$2089

- 64K Cache Expandable to 256K
- 8 MB RAM Exp. to 32 MB
- 1.2 MB FDD
- 340 MB SCSI Hard Drive
- MGP Display Card
- 14" Monochrome Monitor
- Full Tower Case W/250 PS
- Adaptec SCSI EISA Controller
- I/O 2 Serial/1 Parallel/ 1 Game Port
- 101 Enhanced Keyboard

For More Options, Please Call

HITRON HIGH PERFORMANCE SYSTEMS

486DX2-66 MHz
$1375
486DX-50 MHz
$1285
486DX2-50 MHz
$1225
486DX-33 MHz
$1145

- 128K Cache Expandable to 256K
- 4 MB RAM Exp. to 32 MB
- 1.2 MB FDD
- 120 MB IDE Hard Drive
- SVGA Display Card w/512K
- 14" SVGA Color Monitor w/.28dp (1024x768)
- Mini Tower Case W/200 PS
- 2 FDD/2 HDD IDE Controller Card
- I/O 2 Serial/1 Parallel/ 1 Game
- 101 Enhanced Keyboard
- Upgrade To Local Bus Add $120 More

BLOWOUT SPECIALS!

486SX-33 MHz
$945
486SX-25 MHz
$915
386DX-40 MHz
$805
386DX-33 MHz
$805

- 128K Cache Expandable to 256K
- 4 MB RAM Exp. to 32 MB
- 1.2 MB FDD
- 120 MB IDE Hard Drive
- SVGA Display Card w/512K RAM
- 14" SVGA Color Monitor w/.39dp (1024x768)
- Mini Tower Case W/200 PS
- 2 FDD/2 HDD IDE Controller Card
- I/O 2 Serial/1 Parallel/ 1 Game
- 101 Enhanced Keyboard

HITRON NOTEBOOKS

386SL-25 w/2 MB, 16K Cache
$1380
386SL-25 w/4 MB, 16K Cache
$1499

- 80 MB Hard Disk
- 1.44 MB Floppy Drive
- VGA Resolution
- I/O-1 Serial/1 Printer Port
- Ext. Keyboard and VGA Connector
- Carrying Case
- DOS 5.0 and Windows 3.1

For More Upgrade Options Call!

MOTHERBOARD

NICE EISA 486-33/50/66.	CALL
MICRONICS VLB 486-33/66	CALL
AMI VLB 486-20/25/33/50/66	CALL
FREE VLB 486-20/25/33/50/66	CALL
JOINDATA 386DX-33/40	CALL
JOINDATA 386SX-25/33	CALL

HARD DRIVES

40 MB (IDE)	$139
80 MB (IDE)	155
170 MB (IDE)	245
250 MB (IDE/SCSI)	275/320
340 MB (IDE/SCSI)	399/589
500 MB (IDE/SCSI)	CALL
1.2 GIGA	CALL

NETWORKING

NE1000 Clone (COAX)	$69
NE2000 Clone (COAX/TP)	85/95
NE2000 Combo Clone	110
Intel EtherExpress COAX/TP	135/145
SMC Etherlink II	165
LANtastic Software	CALL

VIDEO CARDS

MGP	$12
Trident SVGA w/1MB	60
Tseng SVGA w/1 MB	80
Tseng VLB w/1 MB	149
Genoa VLB w/1 MB	135
Orchid Pro IIs w/1 MB	139
Fahrenheit w/1 MB	165
Fahrenheit w/1 MB VLB	CALL
Fahrenheit P9000 VLB	475
Diamond Stealth 24 w/1 MB	189
Diamond Stealth 24 VLB w/1 MB	CALL
ATI Winder XL 24X w/1 MB	156
ATI Vantage 1 MB w/Mouse	235
ATI Ultra Pro VLB w/1 MB	345
ATI Ultra Pro VLB w/2 MB	440

CASES

Full Tower w/250W PS	$110
Black Full Tower w/250W PS	160
Mid Tower w/230W PS	89
Black Tower w/200 PS	98
Black Mini Tower w/200W PS	75
Baby Desktop w/200W PS	60

MONITORS

14" Monochrome	$98
14" VGA Mono	125
14" SVGA .39	240
15" SVGA .28	275
14" SVGA .28 NI	310
14" Black SVGA .28	295
14" Black SVGA .28 NI	350
14" ViewSonic 6E .28	325
14" ViewSonic 5E .28	399
14" ViewSonic 5+ .25	509
14" Sony 1304 .25	560
15" ViewSonic 6FX	570
15" NEC 3FGE	CALL
15" NEC 4FGE	CALL
17" ViewSonic 7	CALL
17" NEC 5FGX	CALL
20" ViewSonic 8	CALL
20" NEC 6FG	CALL
ADI	CALL

HI-TECH ELEGANT BLACK CASE SYSTEM ONLY $60 MORE

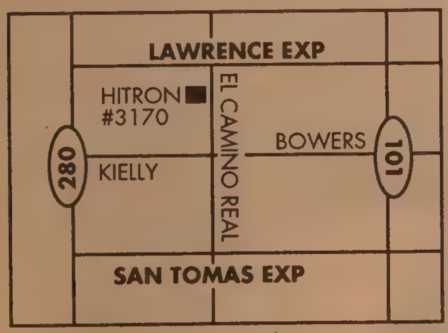
MISC.

1.2 MB FDD	$55
1.44 MB FDD	52
IDE w/ I/O	17
2400 B Modem	45
9600/2400 FAX/Modem	75
120 MB Tape Back-Up	158
250 MB Tape Back-Up	239
101 Keyboard	35
101 Black Keyboard	40

MULTIMEDIA SPECIAL

WITH ANY SYSTEMS PURCHASE BUY A CREATIVE LABS MULTIMEDIA UPGRADE KIT
ONLY $510

- Panasonic CD-ROM
- Sound Blaster Pro Sound Card
- 7 CD Software Library



FOR MORE OPTIONS OR INFORMATION PLEASE CALL:

HITRON SYSTEMS

HITRON SYSTEMS

3170 EL CAMINO REAL
SANTA CLARA, CA 95051
(BETWEEN LAWRENCE EXP. & SAN TOMAS EXP.)
TEL: (408) 261-2695 • Fax: (408) 261-2698
MON-FRI: 9-6 SAT: 10:30-4:30

• All Special Items Order Non-Refundable • Prices Subject To Change w/o Notice • Not Responsible For Typo's

Rethinking

An Interview With Author Brenda Laurel

BY MICHAEL ROBIN •PHOTOS: PAUL WINTERNITZ

The Human-Computer Relationship

"The traditional notion of interface has all kinds of ideas that are really wrong-headed—for instance, that the optimal thing is for a person to be able to program, because the relationship, after all, is between me and the computer. Therefore the ultimate interface for the computer is one when I write code. I don't think that's appropriate at all. It completely forgets the idea that what the relationship is between is a person, a participant, and a representation."

—Brenda Laurel

Sometime in the mid- to late 1970s, Brenda Laurel, a happy but starving actor and graduate student in theatre, crossed over into the world of computer interface design. Partly to increase her immediate and long-term financial solvency by developing her technical skills, she accepted a job as a software designer and programmer with a startup software company, CyberVision. Her first work, on educational programs and interactive fairy tales, was done on a vintage desktop computer with a four-color, low-resolution display, which read data from a cassette and was loaded with 2K of RAM.

The transition from theatre to programming may not seem that obvious or smooth. But Laurel explains, "In 1977, playing games like Red Baron and Flight Cinema, I thought, 'Oh, it's just like theatre. There's action going on, I'm a character, there are other characters. Some of them are like human beings, some aren't. I get it.' It was like a no-brainer. It was quite natural to get into the business of designing an interactive version of Goldilocks."

From this beginning, Laurel's work has focused upon extending our understanding of computer-interface design, or more broadly, human-computer interactivity. This led to her involvement with several leading-edge organizations and institutions, including the then-newly-founded Atari Research Labs (where she first met Alan Kay), the Human Interface Group at Apple Computer (where she worked on Tim Oren's Guides Project, which involved designing agents, or characters with a point of view, to lead users through a database), and Telepresence (where she joined Scott Fisher to conduct R&D on computer-generated environments). Currently, she is working at Interval Research Corp., the Palo Alto-based company founded by David Liddle and Paul Allen to perform research and development in the areas of information systems, communications, and computer science.

After fifteen years in this industry, she is quick to observe that often what is obvious to her isn't obvious to people from a different background or discipline. These differences helped motivate her to write it all down. Her second book, *Computers as Theatre,* published in 1991 (with a new, paperback edition due out this summer), is "an argument for thinking of the object of our concern, the representation, and not the technology." In particular, she explores Aristotle's *Poetics* to develop her argument and suggests that drama presents a good model for understanding computer-human activity—how representations work, and how we might do a better job making these representations.

Nowadays, hardly a week passes without some relatively major announcement about these issues—graphical user interface, collaborative software, the battle over the various operating systems running on Intel-based PCs, and the evolving development of interfaces to computer communication systems such as the Internet, CompuServe, America Online, and Dialog. Interface design and the operating systems behind them are critical: How are people using their computers? What is the best way to design software to foster the useful development of human-computer activities? What are the next systems and how will they work?

Brenda Laurel and I met on a sunny April Fool's

continued

Power, Performance and
to Buy Your Next System

PRESTIGE
COMPUTER
PRESTIGE COMPUTER
PRESTIGE COMPUTER

Motherboard with CPU

EISA VESA 486DX2-66 w/256K	$738
EISA VESA 486DX-50 w/256K	$638
EISA VESA 486DX2-50 w/256K	$618
EISA VESA 486DX-33 w/256K	$518
VESA Local Bus 486DX2-66 w/128K	$658
VESA Local Bus 486DX-50 w/128K	$568
VESA Local Bus 486DX2-50 w/128K	$528
VESA Local Bus 486DX-33 w/128K	$428
ISA 486DX2-66 w/128K	$618
ISA 486DX-50 w/128K	$538
ISA 486DX2-50 w/128K	$508
ISA 486DX-33 w/128K	$399
IBM 486SL2 w/64K	$389
CYRIX 486DLC-33 w/128K	$278
ISA 486SX-25 w/64K	$233
386DX-40 w/128K	$153
386DX-33 w/64K	$150
386SX-33	$95
386SX-25	$90
286-20 MHz	$78
286-12 MHz	$68

Best Deal System

- Motherboard w/CPU
- Cache As Indicated
- AMI BIOS
- 4 MB of RAM (70ns)
- Maxtor 130 MB IDE Hard Drive (15ms)
- TEAC 1.2 and 1.44 Floppy Drives
- SVGA Monitor (1024x768) .28dp
- OAK Technology SVGA Card w/512K
- IDE Controller (2HD/2FD)
- AT I/O Card (2S, 1P, 1G)
- Mini Tower Case w/200W Power Supply
- Mitsumi 101 Enhanced Keyboard

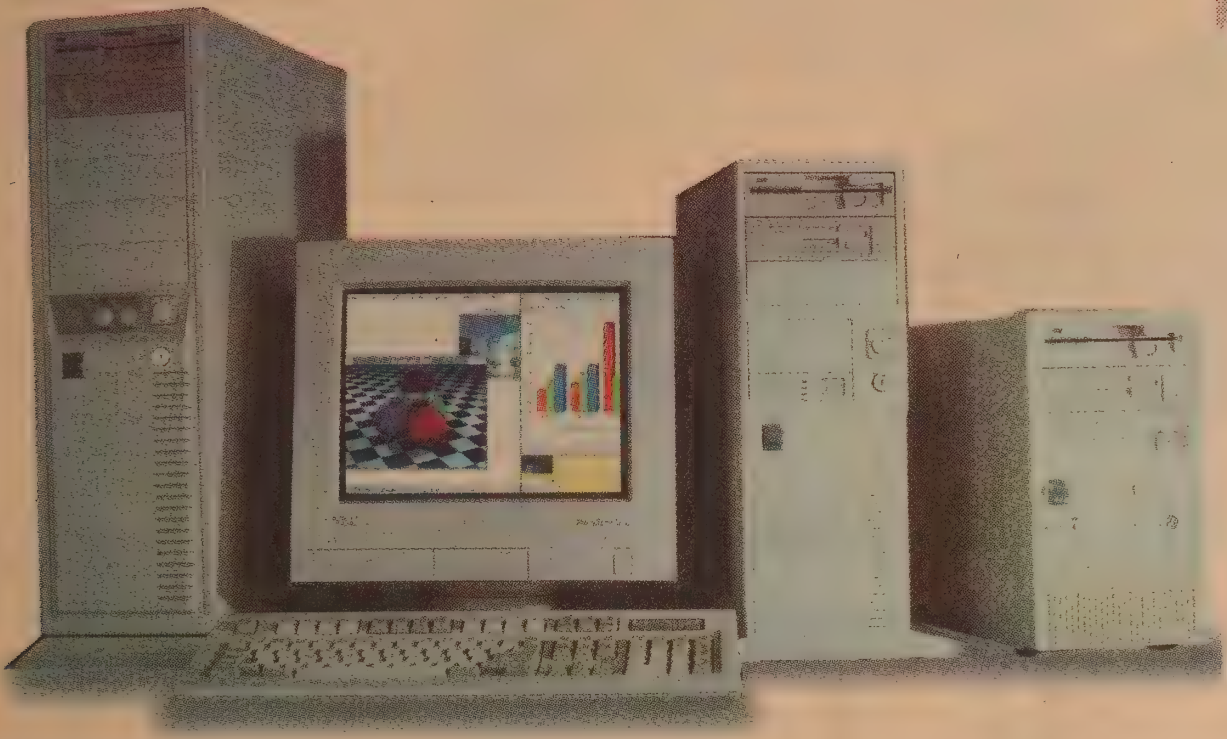
EISA VESA LB 486DX2-66 w/256K	$1,568
EISA VESA LB 486DX-50 w/256K	$1,468
EISA VESA LB 486DX2-50 w/256K	$1,448
EISA VESA LB 486DX-33 w/256K	$1,328
VESA Local Bus 486DX2-66 w/128K	$1,468
VESA Local Bus 486DX-50 w/128K	$1,398
VESA Local Bus 486DX2-50 w/128K	$1,368
VESA Local Bus 486DX-33 w/128K	$1,248
ISA 486DX2-66 w/128K	$1,458
ISA 486DX-50 w/128K	$1,358
ISA 486DX2-50 w/128K	$1,318
IBM 486SL2 w/64K	$1,288
ISA 486DX-33 w/128K	$1,208
CYRIX 486DLC-33 w/128K	$1,088
ISA 486SX-25 w/64K	$1,068
386DX-40 w/64K	$968
386DX-33 w/64K	$965

Prestige Computer Inc.

408-249-3398 Fax: (408) 249-3392
3248 Stevens Creek Blvd., San Jose, CA 95117
Hours: Monday-Saturday 9:00am-7:00pm; Closed Sunday

Price Aren't the Only Reasons from Prestige Computer

Serving the Bay Area Since 1986



Special of the Month

- Intel CPU
- VESA Local Bus Motherboard
- 128K Cache
- AMI BIOS
- Genoa Vesa Local Bus SVGA Card w/ 1MB
- VESA Local Bus IDE Controller Card 2HD/2FD
- Maxtor 213MB IDE Hard Drive (13MS)
- TEAC 1.2 and TEAC 1.44 Floppy Drive
- 4MB of RAM (70ns) Expandable to 32 MB
- **SVGA Non-Interlaced Monitor (1024x768 .28DP)**
- Medium Tower Case w/230W Power Supply
- Mitsumi 101 Enhanced Keyboard
- AT I/O Card (2S, 1G) Ports
- MS DOS 5.0 or 6 Package
- **MS Windows 3.1 Package**
- 3 Button High Resolution Serial Mouse and Pad

EISA VESA
486DX-50MHz
$1918

*Intel 486DX-33MHz	$1608
*Intel 486DX-50MHz	$1768
*Intel 486DX2-66MHz	$1843

Video Cards

OAK 512K SVGA Card	$38
Trident 1 MB SVGA Card	$58
Genoa SVGA 16 Million Color	$128
Genoa VESA 1 MB LB SVGA Card	$118
Diamond Stealth 24 VRAM	$163
Diamond Stealth 24 VLB	$168
Orchid Pro IIs Hi-Color	$139
Orchid Fahrenheit 1280 ISA	$169
Orchid Fahrenheit VLB1280 ISA	$178

Monitors

Mega Image SVGA (1024x768 .28DP) IN	$253
Mega Image SVGA (1024x768 .28DP) NI	$278
ViewSonic 5 Plus/6e SVGA	$493/333
ViewSonic 6FS SVGA	$548
ViewSonic 7/8	$988/1568
NEC 3FGX/4FG	$628/738
NEC 5FGE/6FG	$1185/2388
SONY 1304S/1430S	$548/608
SONY 1604S	$988
14" Mono Monitor	$98
12" Mono Monitor	$79

Brand New Hard Drives

40 MB IDE 25ms	$128
60 MB IDE 18ms	$168
85 MB IDE 18ms	$173
120 MB IDE 18ms	$198
130 MB IDE 15ms	$203
170 MB IDE 17ms	$238
213 MB IDE/SCSI 15ms	$278/358
245 MB IDE 15ms	$298
340 MB IDE 14ms WD	$428
540 MB IDE/SCSI	$828/868
1.2 GB SCSI 13ms	$1218

CD ROM & Miscellaneous

Sony CD ROM 31A/541 (SCSI)	$239/399
Creative Lab Multimedia Upgrade Kit w/MIDI & CD ROM Interfaces 16 Bit Card	$558
CD Software Bundle (6 Titles)	$105
Creative Lab Sound Blaster Card/Pro	$98/198
Logitech DEXA/First Mouse	$28/48
Logitech Mouse Man Serial/Bus	$68
Microsoft OEM Mouse Serial/Bus	$48/68
9600 Fax/2400 Modem (MNP5)	$68
14,400 Fax/14,400 Modem (MNP5)	$199
Colorado 120/250 MB Tape Back-Up	$168/208
Panasonic & HP Laser Printers	$BEST

Warranty

- 1 Year Parts/Labor
- Lifetime Phone Support
- 30 Days DOA Exchange

Services

- Free On-Line Tech Services
- 72 Hours QA and QC Burn in
- Ship Within 48 hours (Unless specified)
- No surcharge for credit cards
- 3% Discount for cash purchase

Quality

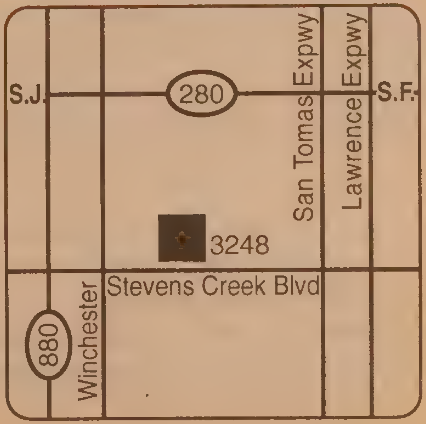
- Qualified Engineers
- Knowledgeable Staffs
- Reliable Parts (Tested) TEAC, Maxtor, NEC, Sony, ViewSonic OMNI, Orchid, Diamond, Genoa and Many More

Guarantee

- Customer Satisfaction is our one and only goal!

Terms:

- Freight charges are not refundable
- Damaged shipment is the carrier's responsibility
- Return items must have a RMA# -please call 408-249-3398
- All specifications & prices are subject to change w/o notice
- Dealer inquiries & government POs are welcome
- Credit terms are subject to approval
- Not Responsible For Typos



morning to take a look at the state of interface design and where things are headed.

What I want to use as a jumping-off point is this quote of yours that the "concept of interface is a hopeless hash and it might be better to throw it out and begin afresh."

Throw it out. Drop kick it off the deck.

Before we do that, to let people know what's being thrown out, what are you referring to as "interface"?

What people mean by it is, specifically, what a "user" sees and hears—and whichever other senses are involved—from the machine out, and what they're able to do back, whether it's with the keyboard, voice or gesture. It's the I/O, if you will, and how that's designed.

There are all kinds of models for what a good interface is. One is direct manipulation, which says that you should be able to access and manipulate the "contents" of your computer by moving physical representations (or visual representations) of them around.

> My issue with "interface" is that it's all predicated on the notion that the relationship is between the user and the computer. I don't think it's true. If you believed a similar thing about films, we would go see projectors instead of movies.

Another interface metaphor is "conversationality," where we say a computer should behave more like a conversation partner behaves. We then get into all kinds of interesting conversations about what conversation is, and what really goes on in conversations. Is it really sender/receiver stuff, or is it message-passing, or is it collaborative construction of "common ground"? Susan Brennan at SUNY Stony Brook has done some great work on this.

Let's talk about conversationality in terms of: I'm sitting here with my word processor. What would that mean?

Well, first, that would mean that you would be able to use things that were more like natural language. For instance, to query a database, you could say, "What is there about bananas?" instead of manipulating a folder until you find bananas inside of it, or selecting bananas from a long menu.

There're all sorts of fine points about conversation that we're just beginning to learn that make this a more interesting metaphor. For instance, how humans, when they converse with each other, get clarification when they haven't understood the other person, and how they repair errors in understanding. If you and I are talking and it becomes clear to me, from something you say or don't say, that you don't get it, that you haven't heard what I meant, then there are all these strategies that I might use to correct that error. As we begin to think about modeling those kinds of things, the conversational metaphor gets stronger and stronger.

My issue with "interface," and the reason I made that statement, is that it's all predicated on the notion that the relationship is between the user and the computer. That's just an assumption that we make. I don't think it's true. If you believed a similar thing about films, we would go see projectors instead of movies. The relationship isn't between me and the technology. It's between me and the content, or sometimes it's between me and the author of that content, or the presumed author, or between me and some semi-autonomous agent, some entity that's part of the representation of what's going on there.

The computer as a tool to get a task done.

It is a tool, except that as Alan Kay described, it's a meta-medium. That's as good a way to describe it as any I can think of. It's a tool that makes representations, and those representations could be representations of tools, or experiences, or environments, or activities. It's a representation-making machine.

"Computer as inherently interactive" is all the rage. In your books you draw a nice distinction between participation and interaction—getting the person to be more a part of what is going on.

The biggest challenge about this medium is reunderstanding authorship. For over two thousand years, authorship has meant "one person or a few people create something, and a lot of people look at it and respond to it." Interactivity is an extension of that; it tries to accommodate some choice, but still maintains control over the shape of the whole.

What's called for here, and what we'll see in the future, is that we have to give up on that idea. It's much more about collaboration, synchronous and asynchronous. The paradigm underneath it all that's changing is that the notion of hierarchy—top-to-bottom, one-to-many, and control-and-command—gets replaced by a paradigm that's more like what a biologist would describe as "emergent behavior."

This is how we've come to understand bird flocking and fish schooling. There's no leader who's mysteriously communicating with everybody else what the shape of the whole ought to be. The shape of the whole emerges from each individual's behavior, which is so intimately related to the behaviors of other individuals that a form emerges out of the interactions among all the members of the group and with their environment. That form is often very beautiful and intricate. It's not like the choices are between top-down form and chaos; the choices are between top-down form and emergent form, which kind of comes from the bottom up.

The challenge of authoring then becomes one of understanding how this works. How do all the people on a network relate to each other so that some interesting forms and structures can emerge? What kinds of materials do we need to lay around for these guys, or environments where this emergent stuff can happen? It requires the absence of some kinds of constraints and the presence of other kinds of constraints. You can learn almost nothing about this from traditional notions of authorship or command-and-control structures.

This is hard to talk about, but I think that it's a change that's happening on almost every level in human culture right now. This "paradigm shift"—I hate to use that phrase—is from hierarchical thinking to thinking about emergent form and structure, emergent patterns and behavior. Mitchell Resnick at MIT has done some beautiful work in this area, by the way.

Can you say a little bit about how it might look for an individual to sit at their computer with a word processor and a database?

Well, my head has not been in word processing for a while. It's hard to think about it. [*laughs*]

I guess the example I would propose is a scientific visualization problem, or any kind of visualization problem where an architect is trying to understand a design, or a chemist is trying to understand some behavior of a molecule or a biologist is trying to understand the behavior of a species or an organism, where the ability exists to go back and forth and interact with the representation in a very flexible way. The whole notion of scientific visualization is that if I can create alternative representations of data, eventually I may hit on one in some other sensory modality, or some combination of sensory modalities, where suddenly a pattern jumps out at me. That's an example of what I mean by emergence in a person, a single individual working with representation.

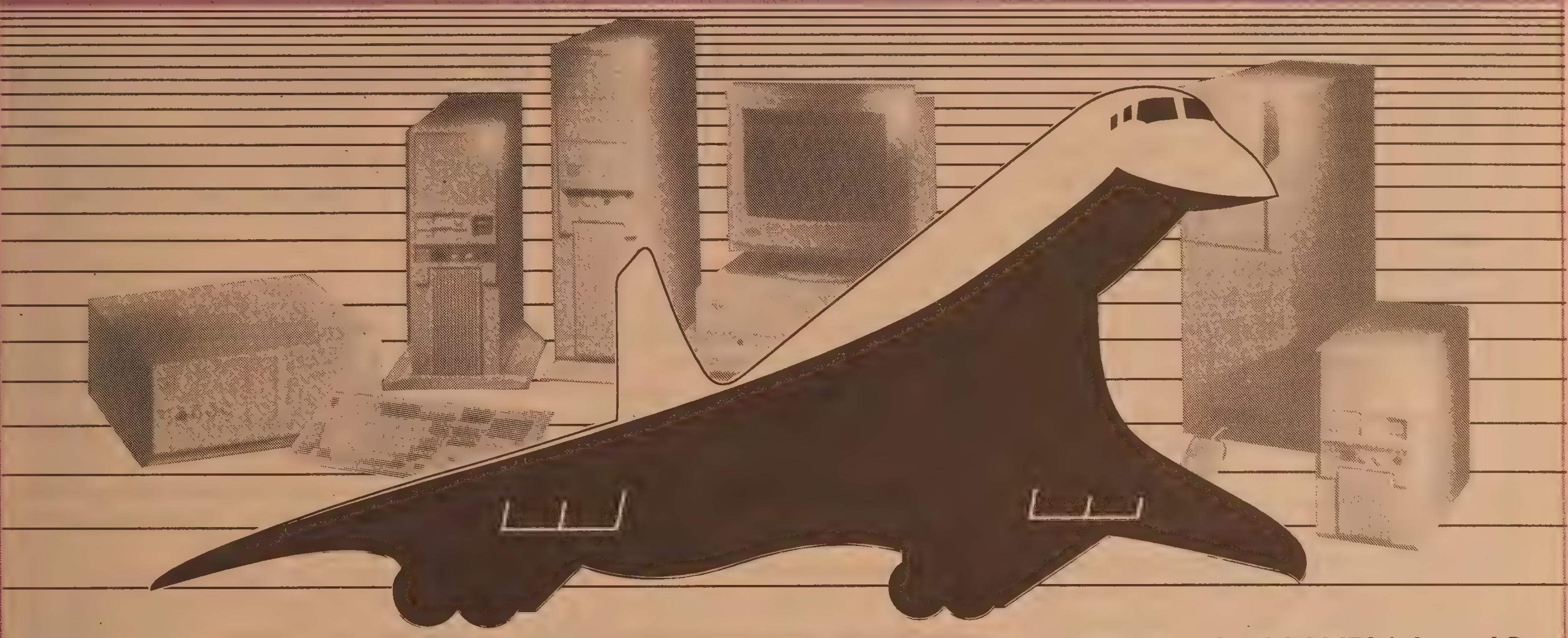
You have worked a lot with games—how might this new paradigm look for games?

These are new thoughts for me; they are not well formulated. I'm just starting to think about it in a different way.

But in terms of gaming, if you look at the difference between a MUD and a canned adventure game, that is the essence of emergence. It's clear that in an adventure game, not only are you highly constrained in what you can do, at least in the traditional kind of adventure game, but you also have to always be changing gears between slaying the dragon and checking your inventory to see if you have a sword and doing all these meta sort of operations. Well, in the world of MUDs, it's not optimal

Your Satisfaction Matters

2 Year Parts 5 Years Labor On All Systems



386DX-40

130MB Drive SVGA System

- AMD 80386DX processor
- AMI Bios
- 128K High-speed cache SRAM
- 4MB Fast-page mode 70ns RAM
- Teac 1.2 and 1.44MB Floppy Drive
- Maxtor 130MB Hard Drive
- Cirrus Logic 16-Bit 256 Color SVGA Card w/1MB
- 2S/1P/1G ports
- IDE Interface
- Mini-Tower Case
- 230W List Power Supply
- 14" .28 Interlaced SVGA Monitor
- 101 Enhanced Keyboard

$910

Quantity Limited

486DX-33/50

170MB Drive SVGA System

- Intel 80486DX co-processor (w/8K Cache & Math Co-processor)
- AMI Bios
- 256K High-speed cache SRAM
- 4MB Fast-page mode 70ns RAM
- Teac 1.2 and 1.44MB Floppy Drive
- Quantum 170MB Hard Drive
- Orchid Fahrenheit True Color w/1MB VRAM
- 2S/1P/1G ports
- IDE Interface
- Mini-Tower Case
- 230W List Power Supply
- 14" .28 Non-Interlaced SVGA Monitor
- 101 Enhanced Keyboard

$1350/1450

486-33/66 VESA Local Bus

213MB Drive VLB System

- Intel 80486DX-33/66 processor (With 8K cache & Math Co-processor)
- Opti VESA chip-set
- AMI Bios
- 128K High-speed cache SRAM
- 4MB Fast-page mode 7ns RAM
- Teac 1.2 and 1.44MB Floppy Drive
- Maxtor 213MB Hard Drive
- 32 Bit VESA ET4000 SVGA 1MB Card
- IDE Interface
- 2S/1P/1G ports
- Mini Tower Case
- 230W List Power Supply
- 14" .28 Non-Interlaced SVGA Monitor
- Keytronic 101 Enhanced Keyboard

$1380/1580

Orchid VESA Local Bus

486DX-33/66 VLB System

- Intel 80486DX-33/66 processor (w/8K Cache & Math Co-processor)
- AMI Bios
- 2 VESA Standard Local Bus
- 256K High-speed cache SRAM
- 8MB Fast-page mode 7ns RAM
- Teac 1.2 and 1.44MB Floppy Drive
- Maxtor 245MB IDE Hard Drive
- 32 Bit Orchid Fahrenheit VLB SVGA 1MB
- 32 Bit IDE Controller
- 2S/1P/1G ports
- Mid-Tower Case
- 230W UL Power Supply
- 14" View Magic 72MHz SVGA Monitor (1024x768)
- Focus 2001 Keyboard

$1800/1999

FINANCING AVAILABLE

Upgrade Your 286 to 386/40 128K cache w/4MB - Only $300

MONITORS

14" .28 Interlace w/Trident 1MB	$310
14" .28 Non-Interlace w/Trident 1MB	350
15" NEC 3FGX/4FG	640/750
17" NEC 5FG	1395
Viewsonic 6E/5E	330/410

FLOPPY / HARD DRIVES

1.2 5 1/4" Floppy Drive	$53
1.44 3 1/2" Floppy Drive	49
20MB IDE	99
130MB IDE	200
170MB IDE	230
200MB IDE	270
240MB IDE	300
340MB IDE	450
120MB Tape Drive	150
250MB Tape Drive	200

PRINTERS

Epson LQ 1070C	$360
Fujitsu DL 3600	360
HP IIP+/IIIP	795/999
HP DeskJet 500/500C	399/600
HP DeskJet 550	750
Okidata OL400/OL800	599/1070

VIDEO CARDS

Cirrus Logic SVGA w/1MB	$55
Diamond Speed Star 24X w/1MB DRAM	160
Diamond Speed Star Pro VLB	150
Diamond Stealth w/1MB VRAM	180
Diamond Stealth Pro VLB	350
Diamond Viper VLB	420
Orchid Fahrenheit w/1MB VRAM	150
Orchid Fahrenheit VLB 1MB	170
MGP Card	15

FD/HD CONTROLLERS

IDE 2HD/2FD	$13
IDE 2HD/4FD	45
IDE 2HD/2FD/2S/1P/1G	17
4FD For AT/XT	40
2FD For AT/XT	30
IDE Cache Controller	145
Orchid 32 Bit VLB IDE/IO	85

MAIN BOARD W/CPU

486DX-50 W/256K Cache	$550
486DX-33 w/256K Cache	450
386DX-40 w/128K Cache	160
386SX-33	120

MISCELLANEOUS

AT I/O 2S/1P/1G	$13
AT I/O 2S/1P/1G W61550CN Chip	70
2400 Int. Modem	35
96/24 Int. Fax/Modem	50
96/14.4K Int. Modem	160
Microsoft Mouse	50
Logitech Trackman	95
Logitech Mouseman	45
Logitech Firstmouse	35
Serial Mouse	15

SOFTWARE

MS Access 2.0	$99
MS-Windows 3.1	80
MS-Word 2.0	285
MS-Excel 4.0	285
MS-Draw 2.0	120
Aldus Page-Maker 4.0	500
Lotus for Windows	330
Harvard Graphics 3.0	320
WinFax Pro 3.0	120

Shareware Available
DEALER INQUIRIES WELCOME

LASER PRINTER MEMORY UPGRADES:

- HP
- CANON
- PANASONIC
- OKIDATA
- IBM
- EPSON
- TI MIICROLAZER
- QMS
- BROTHER
- NEC
- ITOH
- OLIVETTI
- SELKOSHA
- KYOCERA
- KONICA
- APPLE

1 Year Warranty on all components purchased without system. Prices subject to change without notice.

Albany • Berkeley
1533 Solano Ave.

Oakland • San Leandro
1933 Davis St. #262

PC TEN

510/527-1388 *FAX 510/527-7006*

510/568-1688 *FAX 510/568-1688*

There are certain kinds of discourse, and therefore certain ways of thinking, that require the medium of writing an extended argument; they will vanish from the human species if we become only video-literate, or only able to act in an email context where everything is quite ephemeral.

yet, but there is the capacity to assert the existence of things and then to use them, in collaboration with other people who might be in on the game, and in relationship to the world that is already constructed there by other people.

Could you be a little more specific on what a MUD is and how emergent structures might manifest themselves?

There's been an explosion of MUDs over the last two years. Originally the acronym stood for Multi-User Dungeon. Now I think people are calling it Multi-User Dimension.

In 1988, James Aspens of Carnegie-Mellon invented something he called TinyMUD. He created some parts of a world with rooms, and connections among rooms and objects that you could look at or touch or use in various ways. But he also created a facility—a very easy facility—where people could do two kinds of things. One is to look, talk, pick-up, or use whatever was there, and two, to make or assert the existence of spaces that were connected to those existing spaces; and to say how they were connected and to constrain what might happen.

In an adventure game, you get to be the wizard. It's very constrained, and it's all there for you ahead of time. It is a matter of how you combine the pieces. This is much more like a picture-puzzle than Legos. A computer game is a little better than that, because you can put the puzzle together in a lot of ways. But in MUD environments—what I would call emergent game architectures—you're also getting to invent pieces. It's much more like Legos, or clay, or grabbing a handful of walnuts and saying, "OK, this is my army."

That hooks into the work I've been doing the last couple of years with children and how children play. I am an actor, and used to getting immersed in a very disciplined context and environment, having lots of fun there. But children play very differently. They make assertions to each other, popping in and out of tense and in and out of character. But it's all very seamless and fluid—a process of assertion and witnessing. This is very different from the kind of structures we know how to make when we are making top-down representations.

For some reason that makes me think about a comment Isabel Allende made recently about her new novel, that she writes half of the book and the reader writes the other half in their imagination.

If you look at the nonlinear fiction of Borges and those other guys, and she's a person that I'd place in that category—by intentionally doing poly-linear things that are not necessarily chronologically or causally organized like the traditional western narrative, the reader gets invited to participate in another level. Joyce did this all along.

A way in which you get to participate is to let you decide what's salient, how events are ordered, and how they might be connected. A lot more is left to your imagination. But if the materials are lousy, a bad author could write something and you could say, "Give me a break; this isn't art, this is just pain."

So where the genius of authorship remains is in providing wonderful materials. In the world of books this translates into interesting characters and environments with lots of potential. In the world of participatory media you certainly have that, but also it's a matter of providing easy facilities for this sort of fluid, collaborative, assertion-and-witnessing or whatever other paradigm you might want for how actions get defined. That is what the "interface problem" becomes. In other words, it means helping people participate directly with the representation in ways that don't take a lot of cognitive overhead.

Games have been a leading factor in computer interface design. What sort of new things can you see trickling back to what people use in their everyday tasks? Does groupware offer a good place to look?

First, I want to say to your word processor question, a word processor is the representation of a tool that a computer can support. Maybe it can't get any better. I made some comments in my book about how I think word processors ought to change. But in the case of word processors, this emergent pattern stuff probably doesn't make any sense. A word processor is a task-oriented tool, or a process-oriented package of tools. We need to distinguish between the content of a particular representation and the nature of the media.

Using a computer has changed the way I write, just as email has changed how I communicate with people. What's next in our processes of communication as the technology changes?

I don't know. You're right, it has completely changed the way we think about writing. One question is, will the notion of documents as ways of formally representing information among people persist?

If the idea of documents persists, then we will find familiar features in word processors in the future. I really hope the idea of documents persists. In this way I agree with Neil Postman—there are certain kinds of discourse, and therefore certain ways of thinking, that require the medium of writing an extended argument; they will vanish from the human species if we become only video-literate, or only able to act in an email context where everything is quite ephemeral.

Postman's argument is that in media where information is intrinsically ephemeral, television being the most extreme example, we're no longer able to do certain kinds of extended argument, reflective thinking, and analysis, because the medium doesn't support that activity. That's the argument that he puts forth in *Amusing Ourselves to Death.* That's the danger that he sees in television replacing other kinds of discourse.

Getting back to the question of the relationship between games interface and the workaday world?

How will this business affect us in everyday activities? Well, now for instance, there's a MUD in development for astronomers, where they're using the conventions of MUDing—i.e. defining a physical space, the room with a telescope, the room of equations, how this is hooked to that, etc.... In a MUD context you are in this space with other astronomers as a place to have discourse about astronomy. This becomes a really robust alternative to an astronomy conference on a system, for instance, like The WELL, where you would have the usual basenote and responses logged—a sort of forced linearization.

The trade-off is, over in MUD-land, it is more ephemeral, unless you're capturing stuff and saving it as files. It's more experiential. But the theory is that the sense of shared presence in this virtual space enhances collaborative work. It helps people communicate with one another better than in the forced linearized conversation that you get in a traditional net conference. Linearity is temporalizing information, saying, "We will read these from one to ten; we're going to linearize this dimension in time." What a MUD says is, "No, the dimension we really care about here is space. We are going to spatialize this conversation, so when you're in this room, you can deal with this topic, and when you're in that room, you can deal with that topic; you can go from here to there and back and forth, and you can leave a representative of yourself over here or a virtual tape recorder, and all of this stuff can go on at once." So I actually think that will change the way a lot of collaborative works gets done.

It seems to me that what you are really doing is calling for a redefinition, or re-conceptualization of human-computer interaction.

Right. I think we'll look back ten years from now and say, "God, wasn't that goofy that we thought that these things had to be made in little boxes and screens with keyboards and sit on our desks? Isn't that kind of funny, a historical funny thing?"

--Since 1986

The Super Link

MON-FRI: 9AM - 6PM
SAT: 10AM - 4PM
CREDIT CARDS WELCOME

3537 Kifer Road. Santa Clara, CA 95051 Tel: (408)-733-2558 Fax: (408)-733-3890

Micronics 486 VLB SYSTEM

* Micronics 486 VLB Board
  w/ VESA IDE 2S/P
* 256K Cache
* 4MB 70NS
* Teac 1.2 MB FDD
* Teac 1.44MB FDD
* Maxtor 245 MB
* Diamond Stealth VLB S3 w/1MB
* Viewsonic 6E Monitor
* Fujitsu 4850 Keyboard
* Mid Tower Case
* 230W Power Supply

486-33 $1809
DX2-66 $2039

Orchid VLB 486 SYSTEM

* Orchid VLB 486 Board
* 256K Cache
* 4 MB-70 NS
* Orchid VLB IDE
* 2S/P/G Port
* Orchid VLB Video Card
* Teac 1.2 MB FDD
* Teac 1.44MB FDD
* Maxtor 245MB HDD
* Viewsonic 6E Monitor
* Fujitsu 4850 Keyboard
* Mid Tower Case /230W Power

486-33 $1729
486-50 $1899
DX2-66 $1969

ORCHID

MOTHERBOARD

MICRONICS EISA VESA

P5 Upgradable w/256K & CPU
486DX-33 ....$1079
486DX2-50 ....$1219
486DX2-66 ....$1379

AMI EISA VESA Board

486-33 w/CPU.........$809
486-50 w/CPU $959
486DX2-66 w/CPU $1035

VESA Local Bus Board

Micronics: w/CPU /IDE I/O
486DX2-66 /256K $905
486DX-33 /256K $685
Orchid: w/CPU 256K Cache
486DX-33/50 ....$525/675
486DX2-66 ....$749
IBM VLB 486SLC2-50 /CPU
...............................$385
VLB Free (Genoa OEM) no CPU
256K Cache $145
ISA:
486DX/DX2 Main Board
w/128K no CPU.......$95
486SX-33 /64K w/CPU ...$285
3486 Board w/386-40 CPU
/128K Upgradable to 486..$175
386SX-33 w/CPU $95

SPECIAL

EPSON 386SX-16

* 386SX-16MHz
* 1.2MB FDD
* 2MB RAM
* IDE Cont.
* Serial / Parallel
* EPSON Keyboard
* EPSON Case & Power

$275

MOUSE & TRACKBALL

Pen Mouse $22
Easy Mouse $12
Logitech First Mouse $37
Logitech Serial Mouse.....$55
Logitech Bus Mouse $65
Logitech Track Man $75
Microsoft Mouse OEM....$45

VIDEO CARD

VESA Local Bus
ATI VLB w/2MB ..$385
Orchid $169
Diamond Stealth...$169
Genoa $105

Diamond Stealth 24 w/ 1MB...$159
Diamond Speed Star 24X ..$159
Orchid Fahrenheit /1MB VRAM..$175
Paradise clone SVGA /1MB..$72
w/window accelerator..$97
Trident SVGAw/1MB/512k..$59/35
VGA w/256K $27
MGP w/ Printer Port $15

CASE

Dual Fan Full Tower 230W UL..$149
250 / 300W UL..$154/175
10 Bay Full Tower 230/300W..$109/133
9 Bay Full Tower 230/300W....$99/123
8 Bay Mid Tower 230W..........$75
5 Bay Mini Tower 200W.........$55
Desk top Case 200W UL $75

POWER SUPPLY

300W UL for Tower...$69
250W UL.............. $54
230W UL.................$49
230W UL PS-2..........$43
200W UL XT Size......$45

BLK CASE, KB, & MOUSE

Black Full Tower 230W.....$135
Mid Tower 230W.....$119
Mini Tower 200W....$77
Black Keyboard 121 Soft ...$41
5100 Small....$36
Black Mouse $17
Black Monitor 1024x768 .28dp
Interlaced\ Non-Interlaced..$285/315

KEYBOARD

Keyboard w/Trackball ...$65
Focus 9000/8000 ....$79/42
Omni Ultra................$95
Omni 101 /102............$65
Fujitsu 4700/4850........$45/32
Keytronics 101...........$35
Maxi 101...................$33
BTC 5339SX 101.........$21
BTC 5100 Small Size....$34

Prices are subject to change without notice
Freight and labor are not refundable including reject.

TSL BASIC SYSTEM

* 4MB-70NS
* Teac 1.2MB
* Teac 1.44MB
* Maxtor 130MB HDD
* IDE 2F/2H/2S/P/G Cont.
* Mini Tower w/230W Pwr
* 101 Keyboard

Options see below items

ISA:
486DX2-66 /128K Cache ...$1129
486DX50 /128k Cache $1039
486DX-33 /128K Cache $889
486SX-33 /64K Cache $769
386DX-40 /128K Cache $659

-- VLB Genoa OEM --
486DX-33/50 /256K $949/ 1099
486DX2-66 /256K $1169

MONITOR

NANAO:
F550I (17") ...$1045
F340I (15") ...$715
9065S (14") ...$595

Sony:
1604 ....$995
1430 ....$580

Viewsonic:
7E $939
6FS $515
5+ $475
6E $325
4E $285

Addonics:
C143 NI 0.28dp $309
C142E I 0.28dp $259

CONTROLLER

Orchid VLB IDE I/O $77
VLB IDE I/O Cont DTC $82
SMC $43
Winbond...........$47
IDE 4F/2H/2S/P $39
IDE 4F/2H $32
IDE 2F/2H/2S/P/G $17
IDE 2F/2H $12
DTC 3280 SCSI $95
DTC 3280 4FDD Software..$29

I/O CARD

High Speed 2S/P/G $45
High Speed 16550 2S/P/G ...$55
2S/P/G.........................$15
2S/2P..........................$22
Serial...........................$10
Printer $9
Game $11

MODEM

2400 B Modem $32
2400/9400 Fax /Modem............$59
2400/9600 Fax/Modem Pocket...$119
9600/9600 Fax/Modem $185
14400/14400 Fax/Modem $195

PRINTER

CITIZEN GSX-130 ......$175
Canon BJ - 5...............$185
Panasonic KX-2123.......$189
KX-1124i......$209
KX-1123.......$165
2nd Inventory 2yr warranty

HITACHI

CM1584MU 15"
SuperScan 1024x768
Non-interlaced 72Hz
Anti-static, Anti-glare,
Flicker-free
Low ELF&VLF emission
High refresh capability
(50-100Hz) refresh rate
MPRII Standards

$475

SPECIAL OF THE MONTH

FLOPPY DRIVE

Teac Combo 1.2&1.44 .. $125
Teac 1.2 MB................$48
Teac 1.44 MB $40
Mounting Kit $4

Cordless Mouse $27.99

HARD DISK

IDE: 60MB $125
80MB $179
130MB $199
170 MB $215
200MB $275
245MB $285
340MB $389

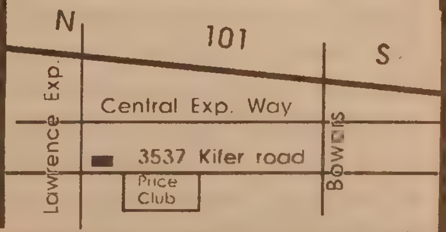
TAPE BACKUP

Colorado 120MB (DJ-10) ...$149
250MB (DJ-20) ...$205
Tape $19.99

SPECIAL

Cooling Fan
** $16**

Don't forget to put a cooling fan for your 486 system .



What is going to replace them, handheld devices...?

I don't know. I don't even know if I want to get into that argument. The thing most people agree on is that the computing power, the kind of representation-making/augmentation that computers provide, will be much more distributed through the environment, and often invisible. So with my little kitchen computer (a Mac Plus), finally I won't have to replace the keyboard every three months because it's got bread dough on it. I'll just be sort of speaking to the kitchen about the recipe, and I'll be hearing the recipe as I'm preparing it, instead of having to run back and forth and look at a screen.

There's no reason why there has to be a device physically present or visible. The relationship is between me and information. And maybe in some advanced state between me and some computationally supported expert who can help me by giving me advice about how to cook this new dish. Laurel's smart kitchen!

Isn't that off in the future, George Jetson type of stuff?

No! It is not off in the future. We can do it right now. It would be kludgy because natural language processing is not great. But that's coming along pretty fast. If I had $5,000 to spend on it I could build that system with what exists today. The only problem is that I would need to understand the constraints of the parser. And that's a pain. [Parsers are programs that try to make sense out of strings of words by using rules about syntax and grammar.]

> There is information in structure, there is bias in structure. The way an encyclopedia database is categorized, the way things are chunked and what's subordinate to what—that is the point of view. There's no such thing as objectivity.

In the scenario I just described, the bottleneck is natural language processing, and there have been a lot of advances in that area in the last two years. But it's not pie-in-the sky; it's not George Jetson. I could have built it ten years ago. But I would-have-had-to-talk-like-this...[*talking very slow, over-enunciating*]... because we weren't able to do continuous speech recognition very well.

In *Computers as Theatre*, you say that one of the key cultural issues is content and access of information. One of the things I thought about when I read this was the structure or authoring of databases. Large databases, for example, come out of large corporate structures and reflect that particular hierarchy. So if you want to build a database or anything else for another structure or environment, you have to be very careful.

Right, because there is information in structure, because there is bias in structure, because the way, for instance, an encyclopedia database is categorized, the way things are chunked and what's subordinate to what—that is the point of view. There's no such thing as objectivity. So when Grolier says to you "so here it is, this is just objective fact," and they print the author's name in little tiny letters, because you are not supposed to care because it's objective. It's a western hierarchical notion of epistemology.

I think one of the things that is happening across the world is what Seymour Papert called "epistemological pluralism." This means that we are beginning to accept the notion that there are many different valid ways of knowing about the world, and that science, or a western analytic view that comes from our culture, is not intrinsically any more valid than a narrative produced by somebody in a wildly different culture.

Tim Oren had a project at Apple that Abbe Don and I worked on (which gets talked about in this book). He said, "OK, instead of finding stuff in a database in terms of these hierarchies of categories, which is how encyclopedias would do it, let's create some agents that have explicit points of view." Tim figured out how to represent what each agent was interested in as a kind of vector in the topic-space, which turned out to be a very elegant solution to a complex problem—that became the guts of what we called Guides.

In the Apple project, we were using a database about Westward Movement in America. The Guides found information according to their points of view, for example, from the point of view of a Native American. We had to add some new material too, to support multiple points of view—there's stuff in there written by Red Jacket and Black Elk and other people that you're not going to see as authors of encyclopedia articles.

So one way to think about redesigning databases to support multiple points of view, or multiple epistemologies, is to organize them by point of view. In other words, information can be presented to you by an agent that represents a particular point of view that is not "neutral"—we even designed a way for you to create new agents and points of view by specifying the kinds of things they might be interested in, by topic and media type. I think information providers of the future are going to be responsible for more and more diverse sources of information, and need to give people the means to filter and select from that vast sea.

What is the influence of culture on interface design?

We could say that in the globalist view, just like English has become the standard of the business community throughout the world, Windows or desktops or whatever the next thing is will become the *lingua franca* of the business community throughout the world in human-computer interaction. And that may well be true—I'm not so concerned about the business community. I've not been involved in computing for the business world in most of my career, and in the job that I have now, I'm looking at the world of people in private and public spaces, as opposed to people in the workplace.

So in that case there are certain aspects of magazine publishing that are sort of global. It's on paper, it includes printed pictures. In America you start at the front, in Japan you start at the back, but there are these sort of conventions that have to do with magazine-ness. Now, within that there are all sorts of differences that have to do with layout and illustration and typography, but there are many more people in the world that probably don't have magazines and don't read them and never saw them.

If you want a communication medium that actually has the capacity to link up everybody on the planet, you have to give up the notion that there can be a single interface. The differences among cultures are too great. I believe that the interface, that is the mode of interaction between me and any given representation, whether it be the representation of a database or the representation of a virtual world as in a MUD or the representation of a computer game—that interaction has to be soft, and it has to be shaped through the process of my fooling around with it. The best example I can think of is a famous experiment in public space design—instead of laying down sidewalks in a public space, the architect sat back and waited until enough people had walked around this grassy space that it had footprints on it, and that's where they put the sidewalks.

We need to think about designing systems that have that same kind of softness about them so that there's easy entry, there's not a steep learning curve, and we can begin to see footprints. The WELL could be light-years ahead of where it is now if they were looking at footprints instead of forcing PicoSpan and UNIX down our throats; the amazing thing is that people put up with it and you still get emergent behavior. Look at the cultural diversity on The WELL—from within an incredibly brain-damaged iron maiden of an interface, there's this mushrooming cultural diversity. You can say that about almost anything on the Internet. I don't know of a good interface yet to Internet communications. There are some that are better than others, but by and large we have not solved that problem. Yet, people put up with it and still end up creating diversity.

What I'm saying is that if we want to design good interfaces that really are about global interface, and not just about global access for male business people, or people with resources, or people who speak English, or whatever, then we have to give up the idea of a universal interface. We have to think about interfaces as clay, or things that are soft, that you imprint by working with them, that are dynamic,

THE LOWEST PRICE EVER FOR 486 EISA VLB!

Computer Systems

386SX-33 $835
- *2MB RAM
- *Mini Tower Case/P.S.
- *IDE Controller & I/O
- *Teac 1.2 OR 1.44 FD
- *80MB Hard Disk
- *SVGA Monitor & Card
- *101 keyboard
- *MS DOS 6.0

386DX-40 $1099
- *4MB RAM & 64k Cache
- *Mini Tower Case/P.S.
- *IDE Controller
- *Teac 1.2 & 1.44 FD
- *120MB Hard Disk
- *2s, 1p, 1g I/O Port
- *SVGA Monitor & Card
- *101 keyboard
- *MS DOS 6.0

486DX 256K CACHE

486DX-33
$1437

486DX-50
$1582

486DX2-66
$1665

- *486DX 256K M.B.
- *4MB RAM
- *Mini Tower Case/P.S.
- *IDE Controller
- *Teac 1.2MB FD
- *Teac 1.44MB FD
- *120MB Hard Disk
- *2s, 1p, 1g I/O Port
- *16bit SVGA w/1MB
- *SVGA Monitor
- *101 keyboard
- *MS DOS 6.0

Orchid VLB System

486DX-33 $1835
486DX2-66 $2099

- *Orchid 486 VLB 256k M.B.
- *2 32 bit VLB Slots
- *4MB RAM
- *Mid. Tower Case/P.S.
- *Super IDE VLB Controller
- *Teac 1.2 & 1.44 FD
- *210MB Hard Disk
- *2s, 1p, 1g I/O Port
- *Orchid Fahrenheit VLB
- *SVGA Non-I Monitor
- *101 keyboard
- *MS DOS 6.0

Micronics Multimedia VLB System $4745

- ***Micronics 486DX2-66 VLB** 256k
- *8MB RAM
- *Full Tower Case/P.S.
- ***Forex** Fast SCSI2 VLB Controller
- *Teac 1.2 & 1.44 Floppy Drive
- *525MB Fast SCSI2 Hard Disk
- ***Toshiba** XM-3401b CD-ROM 200ms
- *2s, 1p, 1g I/O Port
- ***ATI** Graphics Ultra VLB 2MB
- ***Creative Labs** Sound Blaster 16 ASP
- ***NEC** 4FG NI Monitor
- ***Keytronic** 101 keyboard
- ***Microsoft** Mouse Serial
- *MS DOS 6.0 & Windows 3.1

AMI Enterprise III EISA VLB $4132

- ***AMI 486DX2-66 EISA VLB** Motherboard w/256k cache
- *8MB RAM
- *Full Tower Case/P.S.
- ***Ultrastor** 24F EISA Fast SCSI2
- *Teac 1.2 & 1.44 Floppy Drive
- *525MB Fast SCSI2 Hard Disk
- *2s, 1p, 1g I/O Port
- ***ATI** Graphics Ultra Pro VLB 2mb
- ***NEC** 4FG NI Monitor
- ***Keytronic** 101 keyboard
- ***Logitech** Mouseman Serial
- *MS DOS 6.0
- *MS Windows 3.1

Graphics Adapters

ATI Graphics Ultra Pro 2mb	$575
ATI Graphics Ultra Pro VLB	$575
Diamond SpeedStar Pro VLB	$145
Diamond Stealth 24	$169
Diamond Stealth Pro 2mb	$399
Diamond Stealth Pro 2mb VLB	$399
Diamond VIPER VLB	$395
MATROX MG-128	$1465
MATROX MG-3D	$2459
MATROX MG-3D Ultra	$4921
Orchid Fahrenheit 1280 Plus	$159
Orchid Fahrenheit 1280 VLB	$215
Orchid P9000 VLB	$395

Monitors

MAG MX14S 14" .28 1280	$525
MAG MX15F 15" .28 1280	$605
MAG MX17F 17" .28 1280	$1075
NANAO F340i 15" 0.28	$735
NANAO F550i 17" 0.28	$1145
NANAO F750i 21" 0.31	$2195
NANAO T560i 17" 0.26	$1645
NANAO T660i 20" 0.31	$2595
NEC 4FG 15" 0.28mm	$785
NEC 5FG 17" 0.28mm	$1389
NEC 6FG 21" 0.28mm	$2395
ViewSonic 5E 14"	$405
ViewSonic 15 15"	$655
ViewSonic 7 17"	$949
ViewSonic 20 20"	$1890

Hard Drives

CONNER	
CP-30174 170MB IDE 18ms	$226
CP-30254 250MB IDE 14ms	$375
FUJITSU	
2624FA 525MB SCSI 12ms	$869
MAXTOR	
7120A 130MB IDE 15ms	$207
7245A 242MB IDE 15ms	$307
7345A 345MB IDE 13ms	$479
Lxt-535A 535MB IDE 13ms	$899
MICROPOLIS	
MC2112 1.2GB SCSI 10ms	$1495
QUANTUM	
LPS-240AT 244MB IDE 16	$365

Floptical Drives

IOMEGA	
Floptical Insider 21MB Int.	$475
Floptical 21MB Ext.	$515

Tape Drives

COLORADO	
DJ-10 120MB INT.	$159
DJ-20 250MB INT.	$215
Trakker 250MB Ext.	$409
PowerTape 2GB Int	$1089
PowerTape 4GB Int.	$1721
IOMEGA	
TAPE 250MB Insider	$235
TAPE 250 Ext. Parallel port	$429

Controllers

ADAPTEC	
AHA-1542C SCSI2	$225
AHA-1542C Kit SCSI2	$289
AHA-1742A Kit SCSI2 EISA	$459
DTC	
2290 EISA IDE	$135
3280AS ISA SCSI2 4FLOP	$131
3292AS EISA SCSI2	$369
FOREX	
SCSI VLB CONTROLLERS	$259
ULTRASTOR	
ULT 14F ISA SCSI 32K	$229
ULT 24F EISA SCSI 64K	$395
ULT 34F VLB SCSI2 32K	$295

Modems & FAX

STB	
DSP/550 2 16550 & 1 Parallel	$49
HAYES	
Accura 14.4+ 14.4Fax Int.	$239
Accura 14.4+ 14.4Fax Ext.	$269
SmartLink	
9624 FaxModem Int.	$52
14.4k FaxModem Int.	$179
14.4k FaxModem Ext.	$209
ZOOM	
VXV32bisWin 14.4 Fax Ext	$282
ZyXEL	
U-1496E 16.8 Voice Ext.	$325

Networking

3 COM	
Etherlink III (3C509) Adapter	$129
Etherlink III EISA (3C579)	$249
ARTISOFT	
LANtastic AE-2 StarterKit	$495
LANtastic /AI V5.0 Single	$84
LANtastic NodeRunner2000/c	$195
SMC	
EtherCard + Elite 16 Combo	$156
Token Ring Elite 16Bit 4/16	$397

Printers

HP Desk jet 500/550c	$399/749
HP Laer jet IV	$1455
OkiData ML 320/321	$349/$469
Epson LQ-570	$249
Epson LQ-870	$449
Epson LQ-1170	$599

Keyboards

KEYTRONIC 101	$45
KEYTRONIC Track101	$179
OMNIKEY 102	$75
OMNIKEY ULTRA	$99

Mice

Logitech Mouseman S/B	$65/$79
Logitech Trackman Ser.	$85
Kensington Expert Mouse	$99
Microsoft Mouse Ser./Bus	$79/$85

MULTIMEDIA

Creative Labs
Discovery CD 16 upgd kit....$499
- * Sound Blaster 16
- * CD-ROM drive 390ms
- * Two stereo speakers
- * The San Diego Zoo Presents... The Animals
- * The software Toolworks Multimedia Encyclopedia
- * Creative WaveStudio
- * Monologue for Windows
- * Creative Talking Scheduler
- * Creative Mosaic

Media Vision
Pro 16 Mulitmedia System...$995
- * Pro AudioSpectrum 16
- * NEC CD-ROM drive 280ms
- * Windows 3.1 & Lotus 123
- * Compton's Mult. Encyclopedia
- * King's Quest V
- * MacroMind Action I
- * Stereo Studio F/X
- * TrakBlaster Pro
- * Nautilus Multimedia CD
- * SP Spectrum
- * Pro Speech

CD-ROM Drives

Texel DM3024 265ms Int.	$425
Texel DM5024 265ms Ext.	$520
Toshiba XM-3401B 200ms Int	$515
Toshiba XM-3401B 200ms Ext	$589

CD-ROM Software

American Business Phone Book	$24
Microsoft Bookshelf MPC	$55
PC Graphic & Sound Demo	$24
Animals V1.0	$27
CIA World Fact Book	$29
Composer Quest MPC	$31
Compton's Encyclopedia MPC	$76
Family Doctor	$29
Library of the Future 1st Edition	$57
MacMillan Dictionary-Children	$48
National Geographic Mammals	$34
Playing with Language - English	$33
Playing with Language - French	$33
Playing with Language - German	$33
Playing with Language - Japanese	$33
Playing with Language - Spanish	$33
US Atlas & AutoMap	$34
US Atlas V3.0	$24
Beauty and The Beast	$24
Carmen San Diego- Deluxe	$29
Chessmaster 3000 MPC	$29
Monkey Island	$27
PC-SIG 11th Edition	$29
Secret Weapons of the Luftwaffe	$33
Sherlock Holmes	$28
So Much Shareware I	$19
So Much Shareware II	$24
Space Quest IV	$32
Winware Vol.3	$26

Sound Cards

ProAudio Spectrum 16	$199
Sound Blaster Deluxe	$ 99
Sound Blaster Pro Deluxe	$139
Sound Blaster 16 ASP	$248

MIRACLE
COMPUTERS *SINCE 1985*

780 MONTAGUE EXPWAY, #202
SAN JOSE, CA 95131
TEL: (408) 435-8177 FAX: (408) 435-8179

FOR ORDERS CALL:
1-800-446-9929

Authorized PANASONIC, CITIZEN, STAR, OKIDATA Sales & Service Center

that change as you change, that change as the subculture of which you are a member changes, etc.

That philosophy is sort of guiding the work that I'm doing right now at Interval, trying to look at how diverse people who do or might use computers really are—to give up the idea that accommodating diversity is about teaching this or that population to use Windows and desktops. That is clearly the wrong answer. Computer literacy is a really stupid idea.

So what's needed, what should we be talking about?

We should be talking about designing soft interfaces, interfaces that are imprintable and customizable, in really low-overhead ways for people in groups.

Making computers that are human literate?

Exactly. The question is who has to accommodate to whom. Computer literacy usually means that I say to you, "If you want to drive this car you have to be automobile literate, you have to open the hood and tell me what everything does, be able to take it apart and put it together again, and adjust the carburetor, and if you can't do that then you can't drive it." That's what we mean by computer literacy. And it sucks and it's dumb.

If we use the computer literacy approach to helping girls with computers, for instance, then we would have these wonderful situations where we would say, "Now girls, we know this isn't very natural to you but we want you to learn DOS. Just think about DOS as this Barbie story with sugar coating."

Sorry, this is offensive. It's our job as the people who make technology to make computers human literate. I just think we have to give up this idea that there's some global interface. It's more likely that there's a global interface Play-Doh-thing that we might come up with.

That may be true, but we can't overlook the situation that cyberspace is still a predominately western place.

Unless you are talking to an Australian Aboriginal. I've had conversations with Aboriginal people about virtual reality, and they find it completely understandable and quite obvious. They are amused by the fact that we white guys have to build these big machines to dimly glimpse what is vividly part of their consciousness all the time, with their understanding of dream-time.

My point is that there are constructs in every culture that could be easily accommodated by interactive technology in a way that makes it accessible. At least at the entry level. It is the entry-level area where you need to look for these cultural hooks.

Can we talk about your current work at Interval Research?

That's all I can say about it. My boss will be very unhappy if I say any more about what I am doing than I just did.

You talk about working with girls and women; some would argue that this isn't an issue. Why is this an issue and what are you trying to do with it?

Well, it's an issue for me personally because I am female and I have a right, I believe, to be as empowered as a male by what we as a species have extruded here. It's about equity. It's about accommodating difference, not just sex difference, but cultural difference and individual difference. Even if we were both male there would be big differences in the way that we understand the world and the strategies we use for navigating space, for instance, or thinking about information or solving problems. There's a whole lot of implicit cultural imperialism in the software and operating systems, in interfaces, that we made in the '70s and '80s, and now it's time to make room for lots of new points of view.

If the "girl" problem was easy to solve—that is, to make computers attractive and accessible to girls—the game industry would have solved it. There's too much money on the table, half the market, right? I don't think it's an easy problem to solve, I think we have to change a whole lot of basic premises about how we think about designing software and interfaces and operating systems in order to address that problem, whether it be girls or old people, ghetto kids, or native Americans or Chinese farmers. Can't just put a different coat of paint on it.

Your book was first published in 1991. You added a new chapter in the revised edition due out this summer. Looking back, what was right and what was wrong?

My basic premise about representing action has not changed. What I tried to do in the chapter I've added for the new edition is to look at the book and the thinking that went into it from the perspective

BAR CODE IS OUR SPECIALTY

INPUT AUTOMATION, INC.

The single source for all your bar code system needs: hardware, software, consulting and system design. Our philosophy is based on two principles: high-quality industrial products, and the best technical support available.

DESIGN AND CONSULTING

To create your optimal solution, an Input Automation consultant will design a complete system, and then recommend equipment that fills your exact needs.

INPUT automation, inc.
Authorized Value-Added Distributor

We will not be satisfied until our bar code system meets your demanding standards.

Call today for free info & product information

(Dealer inquiries welcome)

Call for an appointment to see our Showroom

Southern California
Tel: (310) 539-3598
Fax: (310) 530-2849
Tel: (714) 374-4511

Northern California
Tel: (510) 685-6563
Fax: (510) 682-6061

Bar Code Label Printers, Software, and Supplies

Laser Scanners. Omnidirectional, hand-held/hands-free, fixed mount.

Panasonic Portables. Recognized the world over for quality

Welch Allyn bar code readers/scanners. Over 15 years leadership in bar code manufacturing.

©1992 Copyright Input Automation, Inc. All rights reserved. All product names mentioned are trademarks of their respective manufacturers. Input Automation, Inc. recognizes these trademarks.

YOUR ONE STOP SHOP IN SOUTH SAN FRANCISCO

With Quality Systems, Great Prices! and a knowledgeable Staff, Comet Micro Systems is the One!

Novell Authorized Reseller™

Voted one of the Best Ten Computer stores in the Bay Area!

Diamond VESA Local Bus 486DX2-66MHz

486DX2-66MHz with 256K Cache
Intel 486DX2-66MHz Processor Installed
Full Size Tower with 250W Power Supply
Diamond FastBus VLB 256K Cache System Board
8MB RAM 70ns Installed, Exp. to 128MB on Board
Teac 1.2MB and 1.44MB Floppy Drive
Quantum 240MB IDE Hard Disk 256K 15ms
Built-In VESA Local Bus IDE Host Adapter
2 Serial / 1 Parallel / 1 Game Ports
Diamond Viper 2MB VLB, 58 Million WinMark
NEC 4FGe 15" .28mm SVGA Monitor 76Hz
Keytronic 101Keys Enhanced Keyboard
Microsoft Dos & Windows w/ Disks and Manuals
Logitech Mouse Man 400dpi Serial Mouse

$ 3,295.00

EISA VESA Local Bus System, Please Call

SPECIALS OF THE MONTH

15" NEC 4FGe 1024x768 .28mm 76Hz NI Monitor	$710
Sound Blaster Pro 16 ASP with CD-ROM Interface	219
SummaSketch III 12x12 4 or 16 Buttons Digitizer	279
Fujitsu 520MB IDE/SCSI II Hard Disk	749
ThrustMaster Flight Control System Joystick	82
ThrustMaster Weapon Control System	82
Pro Audio Spectrum 16 Sound Card with SCSI Interface	160
Toshiba CD-ROM 256K Buffer 200ms 330KB/sec.	449
NEC CDR84 Internal MultiSpin CD-ROM 280ms	449

Intel Satisfaxtion with FAXability for Windows

Model 200 Int. 14.4K/2400 Fax/Modem	**$275**
Model 300 Int. 9600/14.4K Fax/Modem	**249**
Model 400 Int. 14.4K/14.4K Fax/Modem	**380**

PLEASE CALL FOR ITEMS NOT LISTED

Comet Micro VESA Local Bus System

486DX 33MHz with 128K Cache
Intel 486DX-33MHz Processor Installed
Mini Tower Case with 230W Power Supply
486DX-33MHz VLB w/128K Cache System Board
Intel DX2 66MHz & Pentium Upgradable
4 MB RAM 70ns, Exp. to 32MB on Board
Teac 1.2MB and 1.44MB Floppy Drive
Quantum 127MB IDE Hard Disk 15ms
VESA Local Bus IDE 2 Hard/2 Floppy Drive Controller
2 Serial / 1 Parallel / 1 Game Ports
Diamond SpeedStar Pro VESA Local Bus 1MB RAM
Sampo AlphaScan 14" SVGA 72Hz Monitor
Keytronic 101Keys Enhanced Keyboard
Logitech Mouse Man 400dpi Serial Mouse

$1,675.00

Customize System, Please Call

System Boards

All system boards come with CPU & no RAM

AIR 486DX-33/ 50MHz 3 VLB Slot, 256K Cache	$CALL
Diamond FastBus 486DX2 66MHz 256K Cache	CALL
Orchid SuperBoard 486 VESA Local Bus 256K	CALL
Micronics 486DX2-66MHz VESA Local Bus 256K	CALL
NICE US Made 486DX2-66MHz Super EISA VLB	CALL
NICE US Made 486DX Mini EISA VLB 256K	CALL
NICE US Made 486DX-33MHz ISA VLB 256K	550
Comet 486DX 33MHz VLB 128K with ZIF Socket	550
Comet 486DX 33MHz ISA 128K Cache	475
Comet 386 40MHz 128K RAM Cache	200
Comet 386SX 25MHz with CPU	150

Hard Drives

Conner CP30084 84MB 19ms	$179
Conner CP30104 120MB 17ms	219
Conner CP30174E 170MB 17ms	249
Conner 30204 212MB 256K Cache 12ms	329
Conner CP3304 340MB IDE 12ms	499
Maxtor LXT7120A 130MB 15ms	229
Maxtor LXT7213A 212MB 15ms	289
Maxtor MXT-7245A 245MB IDE 15ms	389
Maxtor LXT7345A 340MB 13ms	449
Fujitsu Hard Drives: 5 Year Warranty	
Fujitsu M2624 520MB IDE 3.5" 11ms	749
Fujitsu M2624 520MB SCSI 3.5" 11ms	749
Quantum ELS 85AT 85MB IDE	185
Quantum ELS127AT 127MB IDE 15ms	219
Quantum ELS170AT 170MB IDE Hard Disk	239
Quantum LPS240AT 244MB IDE 256K Cache	349

Floppy Drives

Teac 360KB/1.2KB 5.25" Floppy Drive	$60/60
Teac 3.5" 1.44MB Floppy Drive	60
Teac Dual 1.2 & 1.44MB Floppy Drive	139

Power Supplies (KingsPao)

150W XT Size Power Supply	$49
200W XT Size Power Supply	59
250W AT Size Power Supply for Desktop	59
230W PS2 Size Power Supply	59
250W AT Size Power Supply for Tower	69

Scanners

Umax UC630 600dpi 24bit Flatbed Color Scanner	$1150

Monitors

12" Samsung Amber Monochrome Monitor	$99
14" Paper White VGA Monochrome Monitor	135
14" Addonics VGA 640x480 Color VGA Monitor	240
14" Addonics SVGA 1024x768 .28mm Monitor	289
14" Addonics SVGA 1024x768 .28mm NI Monitor	329
14" ViewSonic 6E SVGA 1024x768 NI Monitor	345
14" Sampo AlphaScan 1024x768 72Hz NI Monitor	379
15" Sampo AlphaScan 1024x768 70Hz NI Monitor	485
15" MAG MX15F 1280X768 .28mm SVGA Monitor	565
15" NEC 4FGe 1024x768 .28mm 76Hz NI Monitor	710
17" Sampo AlphaScan 1024x768 70Hz NI Monitor	799
17" Sony 1604 1024x768 70Hz .25mm NI Monitor	999
17" ViewSonic 17 1280x768 .28mm NI Monitor	1219
17" Nanao F550i 1280x1024 .28mm 75Hz Monitor	1059
17" MAG MX17F 1280x768 .26mm NI Monitor	1050
17" NEC 5FG 1280x1024 74Hz .28mm Monitor	1350
20" Sampo AlphaScan 1280x1024 .31mm Monitor	1199
20" ViewSonic 20 1280x1024 .31mm NI Monitor	1900
21" Nanao F750i .31mm Flat Screen Monitor	2100

Multimedia

Media Vision Fusion CD 16 Multimedia System	$499
Pro Audio Spectrum 16 Sound Card with SCSI Interface	160
Sound Blaster Pro 16 ASP with CD Rom Interface	219
NEC CDR84 Internal MultiSpin CD-ROM 280ms	449
Toshiba CD-ROM 256K Buffer 200ms 330KB/sec.	449
Future Domain 8bit CD-ROM Adapter w/ Driver	65
Creative Lab. Video Blaster Video Capture for PC	279

Modems

US Robotics Courier and Sportster Modems	$CALL
Intel SatisFAXtion Model 200 14.4K/2400 Fax/Modem	275
Intel SatisFAXtion Model 300 9600/14.4K Fax/Modem	249
Intel SatisFAXtion Model 400 14.4K Fax/Modem	380
Intel SatisFAXtion Model 400e 96/14.4K Ext. Modem	425
Intel 14.4EX External Modem with 16MHz Processor	449
GVC 14.400 V.32bis V.42bis Int./ Ext. Fax/ Modem	189/219
GVC 96/2400 Baud Internal Fax/Modem	75
Complete PC 96/24 Fax/Modem for Windows	109

Network

Ethernet & Arcnet Adapters	$CALL
Artisoft Lantastic Products	CALL
Novell Netware & Network Adapters	CALL

Video Adapters

ATI Graphic Vantage 1MB & 400dpi Mouse	$190
ATI Graphic Ultra Plus 2MB VRAM & 400dpi Mouse	300
ATI Ultra Pro ISA 2MB VRAM Video Adapter	425
ATI Ultra Pro VLB 2MB VRAM Video Adapter	425
ATI Ultra Pro EISA 2MB VRAM Video Adapter	450
Diamond SpeedStar Pro ISA/ VLB 1MB RAM	149/159
Diamond SpeedStar 24x 1MB RAM & HiColor	170
Diamond Stealth 24 VLB 1MB RAM Accelerator	189
Diamond Stealth Pro VLB 2MB Accelerator	449
Diamond Viper VLB 2MB VRAM Video Adapter	469
Hercules Graphite 1MB VRAM Accelerator	299
Orchid Fahrenheit 1280 Plus ISA w/ 1MB RAM	175
Orchid Fahrenheit 1280 VLB 1MB Video Adapter	189
Orchid Fahrenheit 1280 Voice Annotation 1M VLB	229
Accumos Windows Accelerator 256/ 512K	45/65
Trident 8900 Chip Set 1MB SVGA Adapter	69
#9 GXi Video Adapter Lever 25 to 29TC	CALL
#9GXE Level 10/11/12 Graphics for Windows	CALL

Input Devices

Keytronic / Mitsumi 101Keys Enhanced Keyboard	$45/40
Northgate 101 or 102 / Ultra Enhanced Keyboard	79/99
Logitech 400dpi Serial/Bus Mouse Man	68/78
Microsoft 400dpi Serial/Bus Mouse	75
SummaSketch III 12x12 4 or 16 Buttons Digitizer	279
Thrusmaster Flight Control System Joystick	82

Controllers & Adapters

2 Serial, 1 Parallel, 1 Game Ports Card	$18
IDE with 2 Serial, 1 Parallel, 1 Game Ports	30
Kouwell 2S/1P/1G w/ HiSpeed 16550 UART Chip	59
Ultrastor ESDI Controller w/32K Buffer	169
UltraStor 34F VESA Local Bus SCSI Bus Master	275
Adaptec 1522/ 1542C Kit SCSI Host Adapter	159/259
Adaptec 1742 EISA SCSI 32Bit Adapter Kit	449
Promise IDE W/ 512K Cache Upgradable to 8.5MB	135
Promise IDE W/ 0MB Cache Upgradable to 16MB	155
Promise IDE VLB Cache Host Adapter	239

Tape Backups

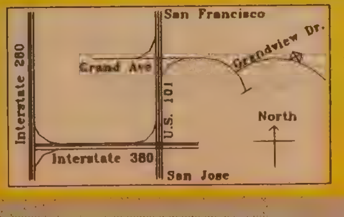
Colorado 250MB Ext. Parallel Port Tape Backup	$419
Colorado 120/250MB Internal Tape Backup	170/215
Palindrome DAT Tape Backup for Novell Netware	CALL
Mountain & Archive Tape Backup	CALL

NO SURCHARGE ON CREDIT CARDS

Comet Micro System

1301 Grandview Drive
South San Francisco, CA 94080
Phone: (415) 615-9123 Fax: (415) 615-0287
MON-FRI 9am to 6pm, SAT 10am to 5pm

MasterCard
VISA



TERMS & CONDITIONS

Prices subject to change w/o notice. Not responsible for typos/errors. No surcharge on credit cards on advertised prices only. Please call for items not listed. One year warranty on all parts. Three years warranty on labor. Dealer & Quantity pricing available.

of what's happened in the last two years. There have been profound changes in culture all over the planet in the last two years. And so in the new chapter you will see this idea of emergence, for instance.

I think what changed most for me, between when I finished the book and now, is that I had this epiphany that is hard to articulate. It is that the top-down structuralist approach has really limited usefulness. I think that everybody who designs a computer or a piece of software needs to know what is in this book. I also think that is not all they need to know. We need to be grounded in some theory of representations that makes sense, because many excellent technical people don't have a clue about what representation is and how it works.

> The model of mind that is reified in the computer is a disembodied mind. It's a model of rationality and logic. If this technology is actually going to augment us, in the way that Engelbart hoped, then we need a more appropriate model of human thought and process.

Why is interface important and to whom? Why is any of this important to the person who simply uses a computer to get their work done?

From the beginning we've defined computers as extensions of our minds, and we've tried to model them after our minds. But the model of mind that is reified in the computer is a disembodied mind. It's a model of rationality and logic.

If this technology is actually going to augment us, in the way that Engelbart hoped, than we need a more appropriate model of human thought and process, and I think we're getting there. The reason VR is important is because it says mind doesn't exist without body; the senses are part of the mind and we have to take our bodies with us. VR makes an assertion about what the mind is, about what human intelligence is. And sure enough, the minute you bring the body into the picture, a couple of other things show up. One is what we used to call intuition. Why is it that when you put somebody into an immersive scientific visualization environment, where there are things that they see and hear, and they are moving their bodies, and they are using all their senses, that they will perceive patterns and be able to think about things in a different way than if they were just looking at numbers? The answer is that the whole is more than the sum of its parts, and that's what we used to call intuition.

The other thing that sneaks in, between the cracks, when you add the body and senses, is passion and emotion. That stuff gets in a lot easier when you can touch it and taste it and feel it and smell it and see it, than if you're just looking at it. Especially if you're just looking at it in text. And what I said in the book, and what I believe to be true, is intelligence is no more simply reason than language is simply words. Most of the content of what you and I are saying to each other that your readers won't see has to do with tone of voice and pause and volume, what we call prosody. So language is words plus prosody. Well, intelligence is reason plus passion. It's feeling strongly about things, it's having convictions. It's having emotional connections with ideas and actions in the world. I think that's true. I think buttoned-up-objectivity is dead or should be soon. So that is why I think this is important. ■

Time for a change?
Increase your marketability.
Increase your salary.
Increase your Networking Knowledge.

When you become a CNE, you become a Netware expert. Thus increasing your value and salary expectations in the job market. You will also receive other advantages that will help you manage networks more effectively.

NOVELL

CNE QUICK COURSE

Whether or not you're already proficient with netware, it's easier than ever to obtain your CNE degree by registering for the CNE Quick Course℠. Developed by Novell's former CNE program manager, the CNE Quick Course℠ is offered only by Certified Network Educators, and allows CNE certification in just 5 DAYS.

Register for the CNE Quick Course, and receive MS-DOS and Microcomputer Concepts Manuals and one Novell test, FREE!

CNE & ECNE CERTIFICATION is closer than you think.
Call Now to Reserve Your Seat.

Certified
Network
Educators

To Register for classes call
1 800 9-NOVELL.
Novell Authorized Education Centers

CALL US FIRST!
BEST PRICES AROUND

HARD DISK DRIVES
• Western Digital • Maxtor • Conner
170, 200, 250, 340 & 425 MB

• EPROMS • CPU's • I.C's
• MEMORY • CRYSTAL OSCILLATORS

CALL FOR LATEST PRICING!

THIS MONTHS SPECIALS
NEW! WESTERN DIGITAL HARD DRIVES

170 MB	200 MB	340MB
$219	$249	$359

Fax/Modem w/Software $49.95
Fax/Modem w/MNP5/ V.42bis & S/W $79.95
Pocket Fax/Modem w/SW $99.95
80287-10 .... $28.50
80387-10 .... $33.00

OEM AND BULK PRICING AVAILABLE

MICROLINK
(408) 263-7501
FAX: (408) 263-7679
743 AMES AVE., MILPITAS, CA 95035

HURRY! Don't Miss This Limited Super Sale!

newriver PERIPHERALS

Price & Availability subject to change w/o notice.
No surcharge for credit cards.
Not responsible for typos.
All items brand new with manufacturer's warranty.
All brands are registered trademarks

VISA MasterCard

South Bay
408/
980-0669

510/623-9125
415/473-9050

Christy
X
880
Auto Mall Pkwy.
Durham
680

43102 Christy St. • Fremont
Fax 510/623-7592

STANFORD
EL CAMINO REAL
COWPER
TASSO
WEBSTER
101
UNIVERSITY
FREE PARKING

540 University • Palo Alto
Fax 415/325-2459

Hard Disks

Maxtor

130MB 15ms IDE 7120A	$186
213MB 15ms IDE 7213A	256
245MB 15ms IDE 7245A	266
340MB 15ms IDE 7340A	366
1.2G SCSI PO-12S	1076
1.7G SCSI PO-17S	1276

CONNER

120MB IDE CP30104	$186
170MB IDE CP30174	209
250MB IDE CP30254	309
340MB IDE	389

FUJITSU

520 12ms M2624T	$768
520 12ms M2624FA	768

TOSHIBA

877MB SCSI MK438FB	$899
1.2G SCSI MK538FB	1179
2.88MB Floppy Drive	79
3401B CD ROM int. SCSI	439

WESTERN DIGITAL

340MB	$365

Motherboards

American Megatrends

SuperVoyager 486-33/66 ISA	$695/995
SuperVoyager 486-33/66 VLB	796/1095
Enterprs III 486-33/66 EISA VLB	895/1195
SCSI-LAN VLB	$395
AMIDIAG	35
FastDisk SCSI EISA NC/Cache	375/475

MICRONICS

XCP 486-33/66 256k ISA	$644/844
VCP 486-33/66 256k VLB	695/895
E3 486-33/66 256k EISA	845/1145

ORCHID

Superbd
486-33/66 256k
VLB No CPU $245

Prima-USA

2 yr. warranty - USA Made
486-33/66 256k
VLB No CPU $235

Percom

486-33DX
/66DX-64k
No CPU $135

Accessories

VIDEO GRAPHICS CARDS

ATI Mach 32 VLB 1/2MB	$295/385
Diamond Viper VLB-2MB	415
AMI FastView EISA-1MB	255
AMI FastView VLB-2MB	395
ORCHID P9000 3MB	415
ORCHID FAHREN. VA-VLB	195
ORCHID FAHREN. VLB/1280+	165/135
CIRRUS LOGIC VLB-1MB	95
SVGA 1MB	55

MONITORS

Standard Technologies 17" SVGA 1024x768 .31dp NI	$545
SONY 1604S 17" SVGA	935
SONY 1430 14" SVGA	567
Viewsonic 6e	307
Viewsonic 15/17/20	CALL
MAG 17F	995
NEC 5FGe	1195
NANAO	CALL

KEYBOARDS

Northgate Omnikey 101	$63
Omnikey 102 NI	63
Omnikey Ultra-T	93
101 Enhanced	17

USRobotics

SPORTSTER 14.4 ext.
$198
SPORTSTER 14.4 int.
188

CONTROLLERS

ORCHID VLB IDE IO	$64
Standard IDE IO	24
Prima Quest VLB IDE IO	$64
ULTRASTOR 34F SCSI VLB	284
ADAPTEC 1542C SCSI KIT	294
DFI MIO-500 IDE IO 16550 UARTS	64

Software

Business

Lotus 123 /windows	$298
ClarisWorks /windows	SPECIAL 95
Coreldraw 3.0	145
Excel/windows 4.0	295
Filemaker Pro /windows	129
Norton Antivirus 2.1	77
Norton desktop /windows 2.2	108
Office/windows 3.0	459
Office/Mac	459
Paradox/windows 1.0	124
PC Anywhere 1.0	114
Print Shop Deuxe	49
QEMM 386 6.0	58
Quattro Pro/windows 1.0	98
Quicken 3.0/Mac	39
Quicken 2.0/PC	39
SAM 3.5/Mac	68
Others	**CALL**

Educational

Just Grandma & Me/Mac	34
Just Grandma & Me/wind.	34
Kid Pix/Mac	35
Kid Pix/windows	35
Kid Pix Companion	29
Reader Rabbit 1	34
Reader Rabbit 2	34
Super Solvers Outnumbered!	39
Others	**Call**

Games

Prince of Persia Mac/windows	29

Where in Time is Carmen Sandiego?
King's Quest, Boxing, Links,
Michael Jordon, Stellar 7,
Star Quest IV, Star Trek &
More coming in every day!

The High Performance Authorized Apple® Reseller ! Best Service, Support & Prices!

EXCEPTIONAL PROCESSING POWER AT AN AFFORDABLE PRICE.

Silicon Valley
WHOLE EARTH ELECTRONICS
APPLE® MACINTOSH®

Macintosh Centris 610

Apple® Macintosh Centris™ 610

The Macintosh Centris 610 delivers the high performance you need to get the job done in a demanding environment, while giving you the flexibility to configure your system to meet your needs today and tomorrow.

- 20-MHz 68040 microprocessor
- 4 MB of RAM, expandable to 68 MB
- 80 MB hard drive
- Works with all Apple displays
- 256 colors, expandable to 32,768
- Eight built-in ports for peripherals
- Slot for additional expansion card

Keyboard & Monitor Extra

6 MONTHS 0% FINANCING COMPUTERS & ELECTRONICS

'040 PRICE BREAK!

Starting at

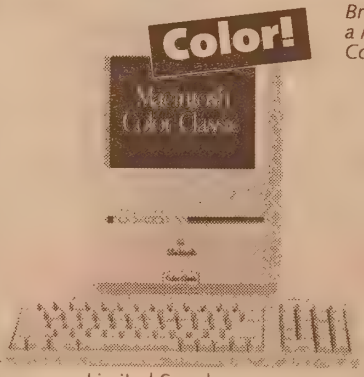
$1449

WAREHOUSE PRICING!

The Complete Color Package.

Apple® Macintosh® Color Classic ®

Brilliant color, plus the convenience and affordability of a Macintosh Classic computer, makes the Macintosh Color Classic the ultimate personal Macintosh.



- 16-MHz 68030 microprocessor
- Built-in, high-performance color display shows 256 colors
- 4 MB of RAM, expandable to 10 MB
- 80 MB hard drive
- Processor-direct slot for expansion cards
- Socket for optional math coprocessor or floating point unit
- Seven built-in ports for peripheral devices

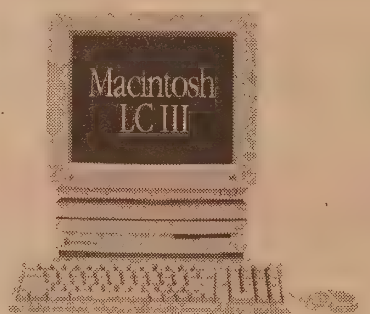
Limited Supply

PRICE BREAK! $1149

The Powerful Choice for Education and Business

Apple® Macintosh® LCIII

Almost twice as fast as the Macintosh LC II, the Macintosh LC III delivers the outstanding performance and versatility you need — all in a slim-line, modular design and at an affordable price.



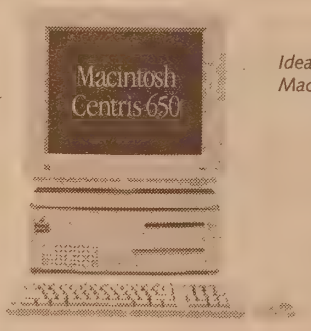
- 25-MHz 68030 microprocessor
- 4 MB of RAM, expandable to 36 MB
- 160 MB hard drive
- Supports up to 16-inch Apple display
- 256 colors, expandable to 32,768
- Seven built-in ports for peripheral devices
- Processor-direct slot for additional expansion card
- Socket for optional math coprocessor

Monitor Extra • Limited Supply

High Performance. Maximum Flexibility.

Apple® Macintosh Centris™ 650

Ideal for mainstream business and professional users, the Macintosh Centris 650 is designed for performance and flexibility.



- 25-MHz 68040 processor
- 4 MB of RAM, expandable to 132 MB
- 80 MB hard drive
- Works with all Apple displays
- 256 colors, expandable to 32,768
- Eight built-in ports for peripherals
- Three expansion slots
- One inline 68040 processor-direct slot
- 68040 socket for optional math coprocessor

Keyboard & Monitor Extra

Starting at

$2399

Maximum Performance in a Compact Design.

Apple® Macintosh Quadra™ 800

With outstanding performance and expansion, the Macintosh Quadra 800 delivers all the features you expect from the highest performance, most expandable line.

Macintosh Quadra 800

Taking Orders

- 33-MHz 68040 processor
- Integrated cache
- 8 MB of RAM, expandable to 136 MB
- 230 MB hard drive
- 256 colors, expandable to 32,768
- Works with all Apple displays
- Room for three internal storage devices, including internal CD-ROM drive
- Three expansion slots
- One inline 68040 processor-direct slot

Keyboard & Monitor Extra

*LIMITED QUANTITIES ON SOME PRODUCTS - SEE STORES FOR AVAILABILITY LEASING AVAILABLE THROUGH AT&T. PRICES BASED ON 48 MONTH LEASE WITH 10% BUYOUT OPTIONAL

Authorized Reseller

Qualify for Whole Earth Access Financing and pay no interest on any computer purchase over $500. Minimum monthly payments required, and if not paid in full in 6 months, finance charges will accrue from date of purchase. Offer does not apply to consumer electronics products.

WHOLE EARTH
ELECTRONICS

SAN JOSE
3530 Stevens Creek Blvd.
(between Winchester & San Tomas)
(408) 554-8300
M-F 10am–9pm
Sat-Sun 10am–6pm

Errors subject to correction.
Prices subject to change without notice.

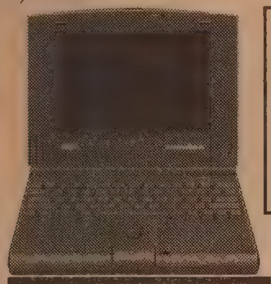
The High Performance Authorized Apple® Reseller ! Best Service, Support & Prices!

The New Incredibly Compact Notebook!

The Best of Both Worlds

Apple® Macintosh® PowerBook Duo™ 210

The PowerBook Duo 210 delivers the full power and ease of Macintosh computing in a 4-pound package that you can take anywhere — and can become part of a complete desktop Macintosh system when you bring it back to your desk.



- 25-MHz 68030 microprocessor
- 4 MB of RAM, expandable to 24 MB
- 80 MB hard drive
- Slots for internal modem and RAM
- Docking connector
- 9-inch diagonal display with 16-level gray scale
- Nickel hydride batteries for 2 to 4.5 hours of use
- No cables or networking software needed

$52 Month Business Lease*

PRICE BREAK! $1499

High Performance at Home or Away.

Apple® Macintosh® PowerBook Duo™ 230

The newest member of one of the world's most widely acclaimed lines of notebook computers, the PowerBook Duo 230 packs tremendous computing power in a package just 1.4 inches thick.

- 33-MHz 68030 microprocessor
- 4 MB of RAM, expandable to 24 MB
- 120 MB hard drive
- Slots for internal modem and RAM
- Docking connector
- 9-inch diagonal display with 16-level gray scale
- Nickel hydride batteries for 2 to 4.5 hours of use
- Performance comparable to high-end Macintosh II desktop computers

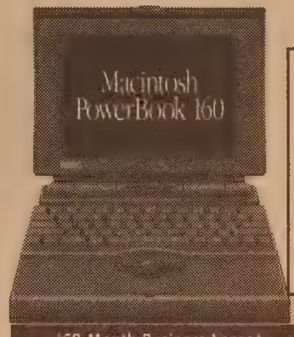
$72 Month Business Lease*

$2299

Power & Flexibility Have Never Been So Easy To Take on the Road

Apple® Macintosh® PowerBook™ 160

The PowerBook 160 delivers speed, flexibility, and convenience in a highly acclaimed, all-in-one design.



- 25-MHz 68030 microprocessor
- 4 MB of RAM, expandable to 14 MB
- 40 MB hard drive
- Seven ports for peripherals, including video-out for external color displays
- Slots for internal modem and RAM
- Full page width, 10-inch diagonal display with 16-level gray scale
- Adjustable brightness and contrast controls

$68 Month Business Lease*

$2149

WAREHOUSE PRICING!

Color & Power in a Notebook Computer.

Apple® Macintosh® PowerBook™ 165c

Color!
Macintosh PowerBook 165c

The PowerBook 165c delivers the processing speed, flexibility, and convenience you need — all in a package that weighs just seven pounds and fits into a briefcase.

- 33-MHz 68030 microprocessor
- 33-MHz 68882 math coprocessor
- 4 MB of RAM, expandable to 14 MB
- 9-inch diagonal display showing 256 colors
- Bright, backlit, passive matrix, 640 by 400 pixels
- Seven ports for peripherals, including video-out for external color displays
- Slots for internal modem and memory

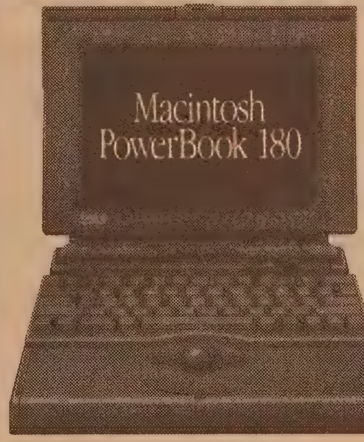
4MB RAM
80 MB HD

$76 Month Business Lease*

PRICE BREAK! $2399

The Most Powerful Powerbook.

Apple® Macintosh® PowerBook™ 180



Limited Supply

The PowerBook 180 is the top-of-the-line Macintosh PowerBook, delivering speed, flexibility, and convenience in a highly acclaimed, all-in-one design.

- 33-MHz 68030 microprocessor
- 33-MHz 68882 math coprocessor
- 4 MB of RAM, expandable to 14 MB
- Seven ports for peripherals, including video-out for external color displays
- Slots for internal modem and RAM
- Full page width 10-inch diagonal display with 16-level gray scale
- Bright, backlit active matrix, 640 by 400 pixels
- Adjustable brightness and contrast controls

4MB RAM
80 MB HD

$115 Month Business Lease*

$3649

Laser-quality printing at an affordable price.

Apple® StyleWriter® II Printer

Ideal for business or home use, the StyleWriter II fits comfortably in even the smallest work spaces and can be put to work immediately; installation takes only one click of your mouse.

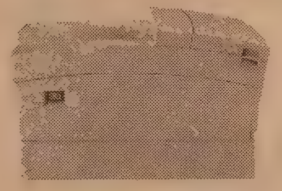
- 360 dots-per-inch resolution for laser-quality printing
- Gray scale printing for sharp graphics
- 39 scalable fonts for printing in any size and a wide range of styles
- Multipurpose tray for effortless paper feeding
- Fast, draft-mode printing
- Plug-and-play simplicity with any Macintosh computer
- Three different print modes for versatility and productivity

In Stock

The Perfect Personal Printer.

Apple® LaserWriter® Select 300

The Apple LaserWriter Select 300 provides laser printing with high-quality results, printer sharing from multiple Macintosh, and extensive paper-handling capabilities.

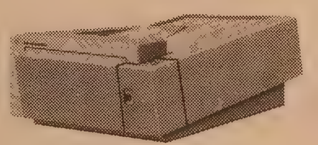


- 300 dpi for high-quality text
- Grayscale printing for sharp graphics
- 39 scalable fonts for printing in any size and a wide range of styles
- User-installable paper handling options
- 250-sheet automatic tray and manual feed tray included
- Compact design fits any desktop

$749

Exceptional Value in a Compact Laser Printer.

Apple® Personal LaserWriter® NTR



Connect simultaneously to Apple Macintosh® and MS-DOS computers! The NTR will pump your text out fast and make your art look gorgeous with a modern RISC controller and advanced page-description language.

PRICE BREAK! $1099

©1993. Apple, the Apple logo, LaserWriter, Macintosh and StyleWriter are registered trademarks of Apple Computer, Inc. Macintosh Centris, Macintosh Duo, Macintosh Quadra, System 7, PowerBook Duo, and PowerBook are trademarks of Apple Computer, Inc. Classic is a registered trademark licensed to Apple Computer, Inc.

Silicon Valley
Whole Earth Electronics
Apple® Macintosh®

Qualify for Whole Earth Access Financing and pay no interest on any computer purchase over $500. Minimum monthly payments required, and if not paid in full in 6 months, finance charges will accrue from date of purchase. Offer does not apply to consumer electronics products.

WHOLE EARTH
ELECTRONICS

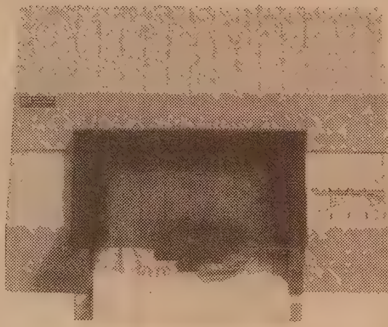
SAN JOSE
3530 Stevens Creek Blvd.
(between Winchester & San Tomas)
(408) 554-8300
M-F 10am–9pm
Sat-Sun 10am–6pm

Errors subject to correction.
Prices subject to change without notice.

The Affordable, Reliable, Colorful HP Printers!

HP Deskwriter Printer

HEWLETT PACKARD



Don't settle for less than perfect, professional-looking documents. The Deskwriter prints at a smooth 300 dpi, it's affordable, and it's compatible with AppleTalk® for use with your Apple® Macintosh® personal computer.

$349.

HP DeskWriter C Printer

HEWLETT PACKARD

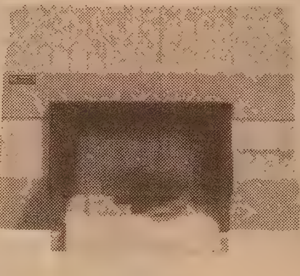
The HP DeskWriter C adds color capacity to an already famous laser quality black output. It's compatible with Apple® Macintosh® personal computers—and your budget.

$489.

WAREHOUSE PRICING!

HP DeskJet 500 Printer

HEWLETT PACKARD

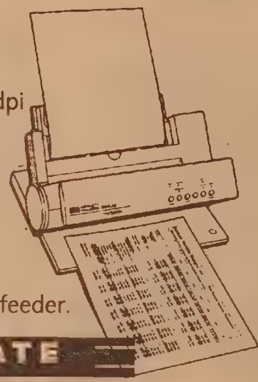


Get laser-sharp printing from all your DOS and Windows applications at a dot-matrix price. This instant classic inkjet printer from HP works with TrueType or font-scaling software to give you perfect type at any size.

$375.

HP DeskJet Portable Printer

HEWLETT PACKARD



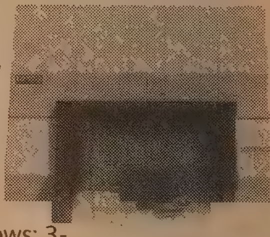
Now you can take famous DeskJet 300 dpi laser-quality output anywhere. Weighs just 4.4 lbs; prints 3 pages per minute (up to 100 pages on one charge). Pictured w/optional cut-sheet feeder.

$75 REBATE

** See store for details. Must purchase a Hewlett-Packard Portable Accessory to be eligible. Effective 3-1-93–6-30-93.* **Ends 6/30/93**

HP DeskJet 500C Printer

HEWLETT PACKARD



Get 300 dpi laser- quality color printing on plain paper and transparencies, for persuasive design and presentation power at a fraction of the cost of a color laser printer. Supports all major software including Windows; 3-year limited warranty.

$489.

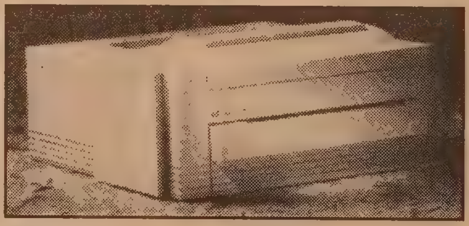
A first class printer for the price of coach.

HEWLETT PACKARD

HP LaserJet 4L Printer

Complete, simple to operate, and affordable, the newest HP LaserJet printer is also the lowest priced HP LaserJet printer…ever! With HP Resolution Enhancement technology and microfine toner for smooth, sharp text and graphics, as well as simple, one-button control panel, the LaserJet 4L is great performance made affordable.

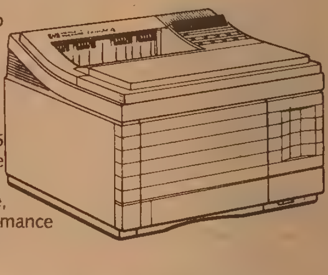
- 300 dpi resolution
- 26 built-in scalable typefaces
- EconoMode cuts toner costs up to 50%
- 1 MB standard memory
- Simple, one-button control panel



$699.

HP LaserJet 4 Printer

HEWLETT PACKARD



HP takes laser printing to the fourth dimension with this surprisingly affordable 600 dots-per-inch printer. (That's twice the resolution of the LaserJet III.) With 45 fonts, 8 page-per-minute speed, fast output from Windows, and, of course, the great network performance you'd expect from HP.

Qualify for Whole Earth Access Financing and pay no interest on any computer purchase over $500. Minimum monthly payments required, and if not paid in full in 6 months, finance charges will accrue from date of purchase. Offer does not apply to consumer electronics products.

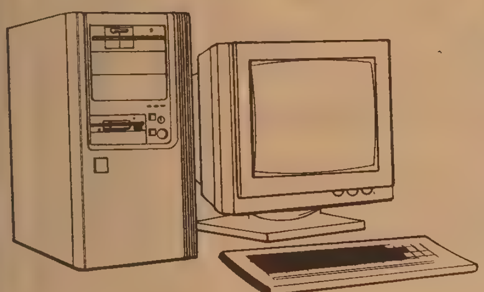
WHOLE EARTH
ELECTRONICS

SAN JOSE
3530 Stevens Creek Blvd.
(between Winchester & San Tomas)
(408) 554-8300
M-F 10am–9pm
Sat-Sun 10am–6pm

Errors subject to correction.
Prices subject to change without notice.

The Best Computers at the Best Prices!

CALIFORNIA
COMPUTERWORKS



LIMITED SUPPLY

$699

DESK TOP SYSTEM

386SX-33 MHz
105 MB HD

- 2 MB RAM • 2 floppy drives
- 101 keyboard • Mouse • MS DOS
- Windows 3.1 • McAfee Antivirus
- SVGA card • 1 yr warranty • Monitor extra

#CCWSCA0027

$1199

MINI-TOWER SYSTEM

486SX-33 MHz
210 MB HD

• 2 local bus Vesa slots • 4 MB RAM upgradable to 32 MB • 128k RAM cache upgradable to 256k • 512k VLB-SVGA card • 2 floppy drives • 101 keyboard • Mouse • MS DOS 6.0 • Windows 3.1 • McAfee Antivirus • 1 yr warranty • Monitor extra

WAREHOUSE PRICING!

LIMITED SUPPLY

$1299

MID-TOWER SYSTEM

486DX-33 MHz
120 MB HD

• 2 local bus Vesa slots • 4 MB RAM upgradable to 32 MB • 128k RAM cache upgradable to 256k • 1 MB VLB-SVGA card • 2 floppy drives • 101 keyboard • Mouse • MS DOS 6.0 • Windows 3.1 • McAfee Antivirus • 1 yr warranty • Monitor extra

$1599

MID-TOWER SYSTEM

486DX2-50 MHz
245 MB HD

• 2 local bus Vesa slots • 4 MB RAM upgradable to 32 MB • 128k RAM cache upgradable to 256k • 1 MB VLB-SVGA card • 2 floppy drives • 101 keyboard • Mouse • MS DOS 6.0 • Windows 3.1 • McAfee Antivirus • 1 yr warranty • Monitor extra

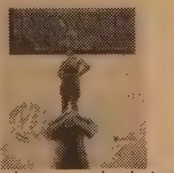
$1849

MID-TOWER SYSTEM

486DX2-66 MHz
245 MB HD

• 2 local bus Vesa slots • 4 MB RAM upgradable to 32 MB • 128k RAM cache upgradable to 256k • 1 MB VLB-SVGA card • 2 floppy drives • 101 keyboard • Mouse • MS DOS 6.0 • Windows 3.1 • McAfee Antivirus • 1 yr warranty • Monitor extra

Rome MAXIS

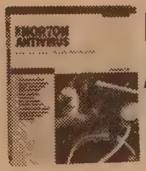


An adventure role-playing game that takes you on a journey through ancient Rome. A dynamic world surrounds you with events happening constantly. **$29.95**

El Fish MAXIS

El Fish is a new type of creativity software. It combines art, science, technology, and life so you can create living art. **$36.95**

SYMANTEC.™



Norton Antivirus

Keep potential trouble-makers out of your hard disk and floppy disks. Works in the background; includes self-updating via modem.

*w/DOS 6 purchase **$68.95***

SIM LIFE MAXIS

Get a life! The genetic playground breaks the barriers between games and simulations, playing and learning—even between machines and living beings. **$39.95**

Fun and Learning for All Ages

Compu-Teach™

$31.95
Your Choice

Qualify for Whole Earth Access Financing and pay no interest on any computer purchase over $500. Minimum monthly payments required, and if not paid in full in 6 months, finance charges will accrue from date of purchase. Offer does not apply to consumer electronics products.

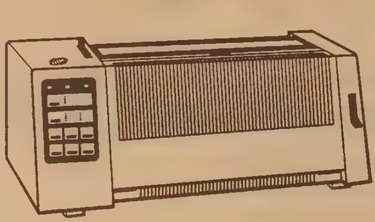
WHOLE EARTH ELECTRONICS

SAN JOSE
3530 Stevens Creek Blvd.
(between Winchester & San Tomas)
(408) 554-8300
M-F 10am–9pm
Sat-Sun 10am–6pm

Errors subject to correction.
Prices subject to change without notice.

The Products You Need at the Prices You Want!

IBM® PPSII 2380



IBM takes impact printing seriously as you and your business. This solid, reliable 9-pin printer is built with a straight paper path so six-part forms and thick paper print right the first time.

$319

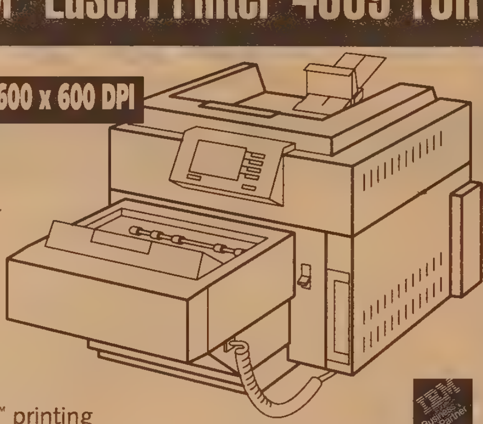
Authorized Advanced Products Dealer

The New Lexmark IBM® LaserPrinter 4039 10R

Lexmark announces the next generation of laser printers. With the built-in intelligence to adapt to your needs today. And grow with you tomorrow. At an affordable price.

True 600 x 600 DPI

- PCL 5 and PostScript® Compatible
- SmartSwitch printer language sensor
- PictureGrade enhancement
- Up to 3 active input ports
- 10 pages per minute
- High speed RISC processor
- 2 MB RAM, expandable to 16 MB
- 200 sheet paper capacity
- Accelerated driver for fast Windows™ printing
- Includes 10,000 page print cartridge

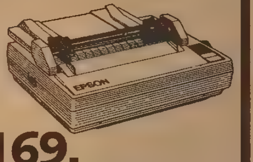


Shown with optional duplex tray

Authorized Advanced Products Dealer

LX-810 EPSON

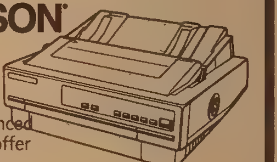
This 9-pin printer with SmartPark™ paper handling offers 200 CPS Super draft, 30 CPS NLQ, and high resolution graphics for excellent printing results.



169.

LQ-570 EPSON

This 24 pin printer utilizes scalable fonts, enhanced graphics, and advanced paper handling to offer better performance.



269.

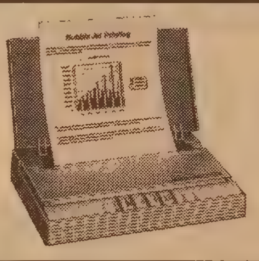
® IBM is a registered trademark of International Business Machines Corp. in the U.S. and orher countries and is used under license. ™ Lexmark is a trademark of Lexmark international, Inc. PostScript® is a registered trademark of Adobe Systems, Inc. Windows™ is a trademark of Microsoft corporation.

WAREHOUSE PRICING!

Canon BJ-10ex Canon

The Canon BJ10ex gives you high-quality document, anywhere, anytime. This portable printer has 360 dpi resolution and battery operation. Optional battery and sheet feed.

$289.

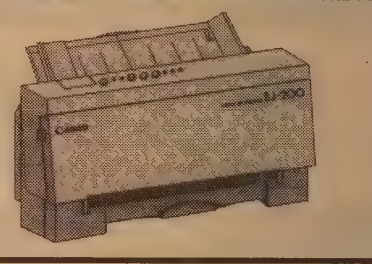


Canon BJ-200 Canon

Canon's new Bubble Jet printer incorporates new print technology that produces laser-quality printing at a truly affordable price.

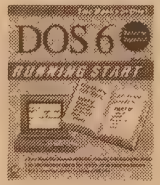
$50 REBATE
SEE STORE FOR DETAILS

Extended thru 7/31/93



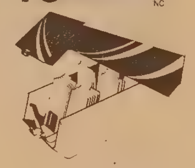
DOS 6 Running Start

SYBEX



Step-by-step tutorial and easy reference demystifies DOS 6.0.
List $17.95 **$\$13^{95}$**

PC ACCESSORIES



3.5" BOX
HOLDS 80 DISKS!
$\$4^{99}$

System Connection System ConnectionMouse

Functional, ergonomic, and the price is right. For DOS and Windows. **$\$10^{95}$**

SILICON SPORTS Hyper Pad

$\$12^{95}$ each

KENSINGTON. PowerTree 10

Organize you power needs while protecting your system from electrical surges.

$\$19^{95}$

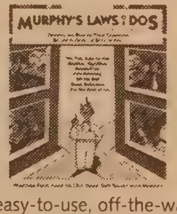
Notebook Case TARGUS

Designed for note-book-style computers, fully padded computer section, reinforced handle & detachable strap.

$39

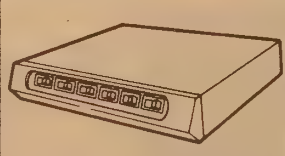
Murphy's Laws of DOS

SYBEX



The fun, easy-to-use, off-the-wall quick reference for the rest of us!
List $16.95 **$\$14^{95}$**

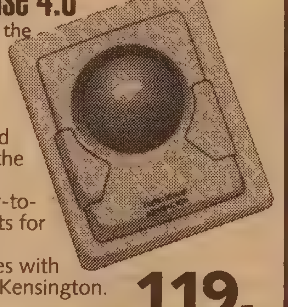
info Power Center



5 outlets surge protection with fax/modem protection. EMI/RFI noise filters and anti-static button.
#SP-PC20 **$45**

KENSINGTON. Turbo Mouse 4.0

The Turbo Mouse 4.0 Trackball is the latest generation of Turbo Mouse. Winner of more awards than any other MacIntosh® input device. Among it's many features include a new, advanced software package which allows the user to customize cursor control, comfortably positioned and easy-to-press buttons, and two ADB ports for chaining other ADB devices. It is system 7.0 compatible and comes with a limited lifetime warranty from Kensington.

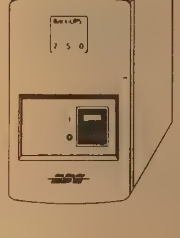


119.

American Power Conversion

APC American Power Conversion

This 250VA Backup is a high performance standby designed to protect computers and peripheral devices from utility line failures which could result in the loss of valuable data. It's features include full suppression and EMI/RFI filtering, an audible alarm which alerts the user to line failures and complete blackout and brownout protection. $25,000 Downstream equipment guarantee.



$125.

*Reseller must have product in stock in order to qualify for price matching.

Qualify for Whole Earth Access Financing and pay no interest on any computer purchase over $500. Minimum monthly payments required, and if not paid in full in 6 months, finance charges will accrue from date of purchase. Offer does not apply to consumer electronics products.

WHOLE EARTH ELECTRONICS

SAN JOSE
3530 Stevens Creek Blvd.
(between Winchester & San Tomas)
(408) 554-8300
M-F 10am–9pm
Sat-Sun 10am–6pm

Errors subject to correction.
Prices subject to change without notice.

continued from page 22

Generalized Markup Language). Programming must be done to make this data useful.

I said that—if they would simply make the data available across the net, for free—numerous programmers would develop various software to access, display, search, extract, index, cross-reference and otherwise make the data useful, and would often share them freely.

That was an even more alien than free storage and file-sharing. There were queries of "Why would they do that?" and, "What's in it for them?" I mentioned civic responsibility, public access to the public's legislative process and just "Because it's there," but some were obviously unconvinced.

They expressed concerns about files being modified. The only explicit example was that legislators' votes might be modified, misrepresenting their positions. I said there were numerous established solutions to this, mentioning that the US Supreme Court is issuing its decisions online, and the White House is distributing volumes of position statements, directives and even the proposed budget—all of as "unprotected text." No one mentioned that anyone can use a paper copy of a bill or vote-count to make false copies on a home copier in a few minutes.

LDC could calculate a large checksum or hash-code of each file before transmitting it, and send them and their algorithms directly to file recipients wanting to verify that the data was unmodified. Or, the most robust solution would be to use public-key digital signatures. The LDC could encrypt the data with their private key; the receiving hosts could decrypt with the matching, published key.

MONEY, MONEY, MONEY

There was also serious discussion of whether they could make money from this—especially from recipient hosts that charge users for access. This prompted a side-discussion about giving away copies of bills versus selling them in their "bill room."

I urged that host operators not charging extra to use this public data not have to pay for it. Without thinking it through, I expressed less concern if the Legislature collected royalties from operators that charged specifically for using legislative data. I gave the example of Compu$erve's extra charges for using the OAG (Official Airline Guide), without remembering that it was privately-authored data, whereas this is the public's information.

They asked how they could protect "their" data; I [stupidly] suggested copyrighting, but grant free use for those who don't charge extra for using it. Dumb idea!—but they were clearly concerned that someone might make money off of their data without them sharing it.

A STATE-RUN PUBLIC FACILITY?

Someone mentioned the possibility of their running their own public-access system. This was not extensively discussed, but it remains an alternative that will be addressed. And a week after the meeting, several vendors said that LDC staff had just requested bids for providing Internet connections. I had the impression that legislator's interest was in possible profits, but it could easily be concern for integrity of data or for control. I doubt that they have realized that a state-run operation could easily monitor who's accessing what—although voter-registration is available to all staff at a keystroke.

> **Several committee members showed clear doubts—perhaps disbelief—that people (a) would accept and store files without charging the state, and (b) would actually share them with others without charge.**

CREDIT WHERE CREDIT'S DUE

Near the end of the hearing, one committee member spoke up strongly in favor of the proposal. He said it was the way of the future and the legislature should be part of it. I later found that he was Ross Johnson (R-Fullerton). Chairman Burton then looked at me, said, "Get me a memo on this," and declared they'd delay action on it. There was no vote.

SOME ISSUES TO BE RESOLVED

1. Can they make money selling the public's legislative data?
2. Should they set up their own public-access system?
3. Can they collect money from those who charge for using this data? How? They seemed to clearly dislike any recipients profiting from distributing it—electronically—unless they get a share; regardless of whether many others make it freely available.
4. Can they legally protect it—the copyright issue?
5. Can the integrity of the data be assured if copies circulate beyond their control? Copies already do circulate beyond their control, to customers of current high-fee private distributors.
6. Would people really receive, store and share the data, and develop and share processing programs, for FREE!?
7. They still need better understanding of the Internet—structurally, operationally and culturally.
8. If they transmit to Internet hosts, which ones? Public-sector hosts? Others?
9. Should this be studied, reviewed, considered, analyzed and picked apart? That's the standard mechanism for delaying or killing a proposal that has public support.
10. Minor red herrings: There are only a few [million] "elite" computer users in California who could use this. There's also lobbying for some monumentally-expensive public-access alternatives—IBM kiosks in malls, 800-number phones with information clerks standing by, etc. But, (1) this proposal does not preclude the more grandiose schemes and (2) this could be implemented in weeks!

It helps to write, fax and talk to your Assembly and Senate representatives.

SPEAKING OF COMPUTERS

I often speak on technology, government, freedom and privacy, and also about personal computing's history and futures. On May 27th, I will join Terry Winograd and Denny Brown in discussing "The Future of Computing and Its Impacts on Society" before Silicon Valley's Churchill Club. June 18th, I will be the banquet speaker for the Ohio Libertarian State Convention. ■

Warren founded InfoWorld, *Wireless Digital, Initiative, Inc. and one of the nation's largest public microcomputer conventions. He was founding host of PBS's* Computer Chronicles, *founding editor of* Dr. Dobb's Journal, *and has chaired various trade and professionals' organizations. He holds graduate degrees in computing (Stanford), medical information science (UC Medical Center) and mathematics & statistics. He has been a computer professional since 1968, and was a mathematics teacher and professor for ten years before that.*

He organized and chaired the landmark First Conference on Computers, Freedom & Privacy (1991) sponsored by a dozen nonprofit civic, professional and industry organizations and received one of the first Electronic Frontier Foundation Pioneer Awards (1992). He is a member of the board of directors of Autodesk, Inc., and also chairs the Communications Committee of the California Public Records Act Reform Coalition.

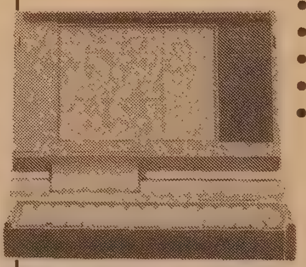
VESA 2 LOCAL BUS 486-66DX2 128K CACHE SYSTEM $878 Motherboard Only $698	VESA 2 LOCAL BUS 486-50DX 128K CACHE SYSTEM $788 Motherboard Only $608	VESA 2 LOCAL BUS 486-50DX2 128K CACHE SYSTEM $748 Motherboard Only $568	VESA 2 LOCAL BUS 128K CACHE SYSTEM $628 Motherboard Only $448	EISA 3 LOCAL BUS 486-66DX2 256K CACHE SYSTEM $1178 Motherboard Only $998	EISA 3 LOCAL BUS 486-50DX 256K CACHE SYSTEM $1088 Motherboard Only $918	EISA 3 LOCAL BUS 486-50DX2 256K CACHE SYSTEM $1048 Motherboard Only $868	EISA 3 LOCAL BUS 486-33 256K CACHE SYSTEM $938 Motherboard Only $758
486-66DX2 128K CACHE SYSTEM $848 Motherboard Only $668	486-50DX 128K CACHE SYSTEM $758 Motherboard Only $578	486-50DX2 128K CACHE SYSTEM $718 Motherboard Only $538	486-33 128K CACHE SYSTEM $608 Motherboard Only $428	486-50SLC 64K CACHE SYSTEM $598 Genuine IBM Motherboard $399	486-25SX 128K CACHE SYSTEM $408 Motherboard Only $218	386-40 SYSTEM $348 Motherboard Only $158	386-33SX SYSTEM $298 Motherboard Only $95

BASIC SYSTEM CONFIGURATION:

- 1 MB RAM Expandable
- IDE 2FD/2HD Controller
- 101 Key Mitsumi Keyboard
- Teac 1.2 or 1.44 MB Floppy Drive
- 2 Serial, 1 Parallel, 1 Game Ports
- Mini-Desk Top or Tower Case
- Power Supply
- One Year Warranty

LIFETIME LABOR WARRANTY ON SYSTEM!

386-25SX & 486-SLC-25 NOTEBOOK



- 2 MB RAM
- 1.44 MB 3.5″ FDD
- 81 Key Keyboard
- MS DOS 5.0
- 2.5 Hour Ni-Cad Rechargeable Battery
- External Keyboard/VGA Ports

OPTIONS:

• 24/96 Fax/Modem	$125
• 2 MB Upgrade	$125
• 4 MB Upgrade	$245

H.D.	386-25SX	486-SLC 25
80 MB	$1178	$1348
120 MB	$1288	$1458
200 MB	$1408	$1568

VIDEO CARDS

ATI Ultra Pro VLB 2MB	$405
ATI Ultra Pro 2MB	395
ATI Ultra Graphics Plus 2MB	315
Diamond Stealth 24	$150
Diamond Speedstar-24X Windows Accelerator	
1280x1024 1 MB 16 Million Colors	158
Diamond Stealth 24 VLB (S3 Chip)	165
Diamond Stealth Pro (VRAM) 1/2 MB	239/349
Diamond Viper 2MB VRAM	395
ORCHID FAHRENHEIT DRAM	$168
ORCHID FAHRENHEIT VESA LOCAL BUS	179
GENOA VESA LOCAL BUS	108
GENOA 7900 (ET 4000)	79
TRIDENT VGA (1024x768) 1 MB	$58
Accumos VGA 800x600/256K	$28
Accumos 1024x768/512K	39
GENERIC Monochrome Graphics w/Printer Port	17

DRIVE CONTROLLERS

DTC 3280 SCSI	$95
DTC 2290 EISA IDE FD/HD	135
IDE Controller	20
IDE Controller/4 Floppy	35
IDE Controller w/2S/1P/1G	25
IDE I/O VLB (True 32 Bit)	65
IDE I/O VLB (2S/1P)	49
Adaptec SCSI 1542C w/Software	219/259
Adaptec SCSI 1742A EISA w/Floppy & Software	478
Adaptec SCSI 1542 Plus w/tape Back-up & CD ROM Drivers	319
Ultrastor VLB SCSI II 32K Cache	288

I/O CARDS

AT I/O (2S 16550/1P/1G)	$42
RS-232 card	17
AT-I/O (2S/1P/1G)	20
Printer Card	14
Game Card	14

MONITORS

NANAO F340iw 15″ .28	$729
F550i 17″	$1125
T560i 17″	1645
T660i 20″	2595
KFC 17″ Flat Screen .26	835
STANDARD 17″ 1024x768	545
VIEW SONIC V8	1595
V7 17″ Flat Screen (72Hz Non-Int)	995
V6E Non-Int 14″	345
V5E	415
V6FS 15″	549
V4E 1024x768 VGA 14″	305
EYEQ 1024x768 VGA .28I	268
SVGA 1024x768 (OEM Goldstar)	225
TOUCH NI 1024x768 (OEM Goldstar)	288
STANDARD TECHNOLOGIES 1024x768 .28 w/Oversizing	275
VGA Mono	109
NEC 4FGE	748
3FGE	548
14″ Flat Screen Mono (Amber or Paper White)	95
SONY 1304 Non-Int (1024x768) 14″	565
1604S 16″	995
2036 20″	2095
MAG MX 15F .28 1280x1024 NI	585
MAG MX 17F .26 1280x1024 NI	1075

KEYBOARDS

Keytronic 101	$39
Mitsumi 101	33
Chicony 5161 101 Keyboard (clicking)	39
MAXISWITCH 101 Keyboard	39
Omni 102/Ultra	69/95
Black 101 Keyboard	39

MODEMS & FAX MODEMS

ZOLTRIX 2400 Internal Modem	$35
24/96 Fax Modem (Send/Receive)	58
14400 Fax Modem V.42 Int/Ext	159/205

DISK DRIVES

TEAC 1.2 MB	$55
3.5″ (1.44 MB)	52
1.2, 1.44 MB Combo Drive	129

MAXTOR	
130 MB 15ms (64K Cache)	199
7213A 213 MB	269
7245A 240 MB	279
7345A (new) 340 MB	379
LXT-535S	899
LXT 340S (SCSI II)	569
LXT-535A 535 MB	878
1.2 Gigabyte 13ms	1095
3.5″ 1.2 Gigabytes 8.5ms	1299
1.7 Gigabyte 13ms	1395
CONNER	
80 MB	178
120 MB 19ms	199
170 MB 17ms	225
213 MB 12ms	279
250 MB 14ms	295
540 MB	749
TOSHIBA	
877 MB SCSI II 3.5″	939
1.2 GB SCSI II 3.5″	1199

NETWORK CARDS

Ethernet 8 Bit	$75
Ethernet 16 Bit	89
Arcnet Star/Bus 8 Bit	49
10 BT Ethernet 16/8 Bit	89/75

TAPE BACK-UP

COLORADO Tape Back-Up 120 MB	$148
Tape Back-Up 250 MB	205
DC-2120 Tape Cartridge For Above	18^{50}
COLORADO Drive External Kit	109
COLORADO Trakker 250 MB	CALL

HIGH QUALITY MAIN BOARDS

486-66 MHz w/CPU w/128/256K Cache	$725/748
486-50 MHz w/CPU w/256K	635
486-50 MHz DX2 128K Cache	578
486-33 MHz w/CPU w/128K Cache	458
486-50 MHzSX VLB w/IBM CPU	395
486-50 SLC (IBM)	399
486-25SX w/CPU w/Cache	218
386-40 (64K Cache) w/CPU	158
386-33SX	95

COMPUTER CASE

14″ Baby AT Case w/200W P/S	$69
17″ Baby AT Case w/200W P/S	89
Vertical Case 250 W P/S	139
Medium Vertical Case 250 W P/S	115
Mini Vertical Case 200 W P/S	69
Sleek Black Case	CALL

LOGITECH PRODUCTS

Logitech Trackman Combo	$75
Logitech Trackman Portable	95
Logitech Model 256 Scanman	249
Logitech Bus Mouseman	64
Logitech Mouseman Combo	64
First Mouse	37
Mouse (Serial 9 Pin)	15
Microsoft Mouse Bus/Ser (400dpi)	85/75
Trackball	28

PRINTERS

Panasonic KXP-1624 132 Column	$355
KXP-2023	209
KXP-1124i	295

MISC.

MS DOS 6 (w/System only)	$58
6/10/15/25′ printer cable	3.50/6/10/20
Keyboard Extension cable	5
Monitor Extension cable	5
Keyboard Drawer/Under Table	27/18
Computer floor stand	7^{95}
Power Center	18
Printer switch box (AB/ABCD)	9^{50}/19
Power supply 150/220W	38/48
Memory Chips (DIPS/SIPPS/SIMMS)	CALL
Math Co-Processors	CALL
Disk Box	7.50
Power Strip	7
Keyboard Rest	3^{50}

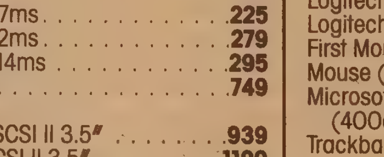
U.P.S.

550 VA	$229

AROMA
computer systems
Always Ready to Offer More Assistance

470 LAKESIDE DR. Suite F
SUNNYVALE, CA 94086
Tel: (408) 736-4355 M-F 9-7
FAX: (408) 736-4356 Sat 10-4

Prices Subject To Change w/o Notice
Prices Good At Sunnyvale Store Only
$20 surcharge for PO processing on systems



MODESTO OFFICE
3430 Tully Rd., Suite #21
Modesto, CA 95350
Tel: (209) 525-8080
FAX: (209) 525-8120

YOUR ONE STOP MULTIMEDIA SOURCE

CD-ROM

- **PANASONIC (MATSUSHITA) 522 (AT BUS W/CONTROLLER CARD)**
  380MS ACCESS TIME, 150KB TRANSFER RATE, FREE CADDY
  INTERNAL DRIVE **$219**
- **PANASONIC 532 (MATSUSHITA) (SCSI) (W/SCSI CONTROLLER CARD)**
  290MS ACCESS TIME, 150KB TRANSFER RATE, PHOTO-CD COMPATIBLE, FREE CADDY
  INTERNAL DRIVE **$345**
  - EXTERNAL KIT FOR PANASONIC 522/532 .... **$60**
- **MITSUMI MPC CD-ROM (AT BUS W/CONTROLLER CARD)**
  350MS ACCESS TIME, 150KB TRANSFER RATE, PHOTO CD COMPATIBLE, CADDYLESS
  INTERNAL DRIVE **$189**
- **TEXEL DM-3024N (SCSI)**
  265MS ACCESS TIME, MULTI-SPIN, FREE CADDY, PHOTO CD COMPATIBLE
  INTERNAL DRIVE **$359**
- **NEC CDR84-1 CD ROM**
  280MS ACCESS TIME, 300KB TRANSFER RATE, 256K BUFFER, SUPPORTS MULTISESSION PHOTO CD, SCSI/SCSI II SELECTABLE
  INTERNAL DRIVE **$469**
- **TOSHIBA XM-3401 (SCSI)**
  FASTEST CD-ROM, 200MS ACCESS TIME, 330KB TRANSFER, MULTI-SPIN, FREE CADDY
  INTERNAL DRIVE **$449**

FREE INSTALLATION WITH ANY CD-ROM DRIVE PURCHASE!!

CD-ROM SOFTWARE TITLES

With Drive Purchase Prices

ENTERTAINMENT CD-ROM TITLES

Chessmaster 3000 MPC	$19
Jones In The Fast Lane MPC	25
Kings Quest V MPC	25
Loom From Lucas Film	25
Mavis Beacon Teaches Typing	25
Media Clips 4 Pack from ARIS.	49
Secret Weapons of Luftwaffe	25
Sherlock Holmes, Cons, Det	25
Total Baseball	29
Where In The World Is Carmen San Diego	25
CD Storytime DOS	16
Stellar 7 DOS	19
Monkey Island	25
Amanda Stories	39
Composer Quest MPC	29
Beauty & Beast	15
Peter & Wolf	15
Mixed-up Mother Goose	19
Desert Storm MPC	19
Wing Commander & Ult VI DOS	25
PC Graphics & Sound Demo	19
Sports Best	22
Battle Chess	19
CD Game Pack II	25
Jets & Props (2 CD)	22
Space Quest IV By Sierra	29
Dinosaur Adventure	29
Space Adventure	29
Willy Beamish-The Adventure	25
Whale Of Tales	68
National Park DOS	19
Mario Is Missing/World Atlas 3.2	25
Sleeping Beauty	18
Mantis Experimental Fighter	18
Beyond The Wall Of Stars	29
Who Killed Sam Rupert?	29
Interactive Storytime Vol. I	19

EDUCATIONAL CD-ROM TITLES

Animals v1.0 Software Tool	$25
Family Doctor	27
Guinness Disc Of Records 1993	27
Time Magazine Almanac 1991	25
U.S. Atlas with Automap	25
U.S. History	29
World Atlas Multimedia MPC	19
Family Choice	27
Library of the Future 1st	45
Nat'l Geographic Mammals	27
World View	15
Ocean Digital Imagery VI	29
Elec Library of Art VI	29
Elec Library of Art V2	29
Great Cities Vol I	21
Great Cities Vol 2	21
Time Table of History	19
Toolworks Encyclopedia	54
Wild Places	15
MacMillon Dict. Children	35
Presidents	78
DTP Pro FM-Wave Clipart	19
Annabelle's Dreams-Egypt	59
USA Wars: Civil War	35
USA Wars: Korea	35
USA Wars: WW II	35
USA Wars: Viet Nam DOS	35
Family Education Collections	23
US Atlas	19
CIA World Fact Book	19
Sound Library	19
Bring the World to Your Senses	15
Tool Works Reference Library	21
Playing with Language: English	29
Playing with Language: French	29
Playing with Language: German	29
Playing with Language: Japanese	29
Playing with Language: Spanish	29
Vital Signs MPC	69
Dictionary of the Living World	29
Arthur Teacher Trouble	25
Tempra Access Photo CD	25
Midi Music Shop	29
Mayo Clinic Family Health Book	29
Wizard PC	19
CD Deluxe Pack 4 Titles In 1	43
Survey Of Western Art MPC	29
The Right College	19
Killer Truck CD-Music Library	18
SFX-300 Sound Effects	18
Atlas Pack V3.1/3.01 World/US	25
Barrons College Guide	25
Electronic Home Library	29
Multimedia Audubon's Birds	22
Multimedia Audubon's Mammals	22
Shakespeare	18

**CALL FOR MORE INFORMATION ON SOFTWARE TITLE AVAILABILITY & PRICING*

CREATIVE

CREATIVE LABS, INC.

MULTIMEDIA PRODUCTS

- VIDEO BLASTER $329
  - Display Full-Motion Video In A Window. Overlay Computer Text And Graphics On Video.
  - Freeze, Store And Manipulate Images From VCR's Or Any Video Source.
  - Application Software Bundled Including Microsoft Video For Windows (Retail Value $139)
- SOUND BLASTER PRO DELUXE 128
  - Stereo Sound Card w/MPC Encyclopedia HSC Interactive & Monologue For Windows
- SOUND BLASTER PRO (LIMITED QUANTITY) 95
  - Sound Blaster Pro, Midi Box
- SOUND BLASTER PRO 16 ASP 229
- CADDY 8
- SPEAKERS 19
  - Labtec CS-150
  - Built-In Power Booster
  - "C" Size Battery Not Included
- AC ADAPTER FOR SPEAKER 8

- **"MEDIA VISION" MUSIC CARD** **$165**
  - Pro Audio Spectrum 16

GRAVIS ULTRA SOUND MUSIC CARD
16 Bit, 32 voice, CD quality sound **$129**

CD-ROM SOFTWARE TITLES

Bundle Specials:

(WITH AROMA'S MULTIMEDIA PRODUCT PURCHASE ONLY)

Compton's Family Encyclopedia	$29
Lotus® 1-2-3 Multimedia PC	99
Compton's PC Encyclopedia	68
Microsoft® Bookshelf MPC	48
Microsoft Work MPC	43

486-33 MHz MULTIMEDIA COMPLETE SYSTEM SVGA W/CD-ROM

PACKAGE INCLUDES:

- 486-33 MHz w/128K Cache
- Intel 80486-33 CPU
- 4 MB RAM
- 120 MB Hard Drive
- Panasonic CD-ROM Model 522
- Media Vision Music Card Spectrum 16
- 1.2 or 1.44 MB Floppy Drive
- 14" SVGA 1024x768 .28mm Color Monitor
- SVGA Card w/1 MB
- IDE Controller (2S/1P/1G)
- 101 Keyboard
- Labtec CS-150 Speakers

$1655

CALL FOR OTHER CONFIGURATIONS & OPTIONS

BUSINESS CD-ROM TITLES

American Bus. Phone Book	$19
Business & Economic Atlas	27
Marketing Master DOS	18
Publish•It 2.0 DOS	29
Arthur Ware Star For Windows	39
Macromedia Action For Windows	28

SHAREWARE

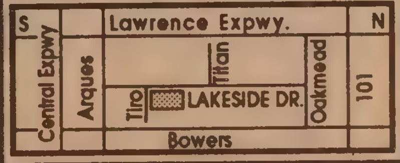
PC-Sig 11th Ed DOS	$19
So Much Shareware I	15
So Much Shareware II	19
Window Shareware III	19
The Shareware Concept	18

AROMA computer systems

Always Ready to Offer More Assistance

470 LAKESIDE DR. Suite F
SUNNYVALE, CA 94086
Tel (408) 736-4355 M-F 9-7
FAX (408) 736-4356 Sat 10-4
20 surcharge for PO processing on systems
Prices Subject To Change w/o Notice
Prices Good At Sunnyvale Store Only

VISA MasterCard DISCOVER



MODESTO OFFICE
3430 Tully Rd., Suite #21
Modesto, CA 95350
Tel (209) 525-8080
FAX (209) 525-8120

MULTI-MEDIA SYSTEM

486-33 MHz SYSTEM $CALL

INCLUDES:
CD-ROM,
SOUND CARD,
AND 4 CD's

INCLUDES:

- √ INTEL 33 MHZ 80486 MICRO-PROCESSOR
- √ 4 MB RAM EXP. TO 32 MB ON THE BOARD
- √ 1.2 MB OR 1.44 MB FLOPPY DRIVE
- √ 120 MB IDE HARD DRIVE
- √ PHILLIPS CD-ROM W/375ms ACCESS TIME
- √ SOUND BLASTER PRO SOUND CARD
- √ SET OF EXTERNAL SPEAKERS
- √ 4 CD'S INCLUDING: COMPTON'S MULTI-MEDIA ENCYCLOPEDIA, BRITANNICA'S FAMILY CHOICE, BRITANNICA'S HOME OFFICE SELECT AND SOFTWARE JUKE BOX
- √ 14" SVGA COLOR MONITOR .28mm
- √ SVGA 1MB ADAPTER
- √ SIX 16-BIT SLOTS AND ONE 8-BIT EXPANSION SLOT
- √ 101-KEY KEYBOARD
- √ MS DOS 5.0
- √ WINDOWS 3.1 WITH MICROSOFT COMPATIBLE MOUSE
- √ 2 SERIAL, 1 PARALLEL AND 1 GAME PORTS

WESTERN DIGITAL HARD DISKS

WE CARRY A FULL LINE OF W.D. IDE HARD DISKS

200 MB, 340 MB

CHINON FLOPPY DRIVES

"THE QUALITY AND PRICES BEAT TEAC!"

★★BEST PRICE ANYWHERE★★

MICRO DISTRIBUTION CENTER

48879 KATO RD., FREMONT, CA 94539 **(510) 657-8079 FAX (510) 657-9511**
15523 BROADWAY, CENTER STREET, GARDENIA, CA 90248 **(310) 515-0155**

AT, XT is a registered trademark of IBM Inc.

WHY BUY FROM ANYONE ELSE...WHEN YOU CAN BUY FROM THE BEST—

UNIVERSAL COMPUTER PRODUCTS

1 YEAR PARTS/
1 YEAR LABOR
WARRANTY
ON ALL
SYSTEMS

486-33MHz W/64K CACHE

- 4MB RAM Installed
- 1.2 and 1.44MB Floppy Drive
- 1:1 Interleave 2HD/FD Controller
- AT Multi I/O (2S,1P,1G)
- Clock/Calendar with Battery Back up
- Enhanced 101 Keyboard
- 120MB IDE Hard Drive
- SVGA Monitor w/Card (1024x768 .28Dot)
- MS-DOS 5.0

$1350

386-33MHz W/64K CACHE

- 4MB RAM
- 8 Slots and Socket for Intel 80387DX
- 200W Approved Power Supply
- Real Time Clock with Battery Back up
- 2 Serial, 1 Parallel, 1 Game Ports
- 101 Enhanced Keyboard
- 1.2 and 1.44MB Floppy Drive
- 120MB IDE Hard Drive
- 1:1 Interleave 2HD/FD Controller
- SVGA Monitor w/Card (1024x768 .28Dot)
- MS-DOS 5.0

$1050

386 SX-25MHz

- 0 Wait State on Motherboard
- Main memory 2MB
- Expandable to 2MB/4MB/8MB
- Supports Co-Processor Intel or Weitek
- AMI BIOS Set up
- 2 Serial, 1 Parallel, 1 Game Ports
- 101 Enhanced Keyboard
- 1.2 and 1.44MB Floppy Drive
- 80MB IDE Hard Drive
- 1:1 Interleave 2HD/FD Controller
- SVGA Monitor w/Card (1024x768 .28 Dot)
- MS-DOS 5.0

$850

REPAIR & UPGRADE SERVICES

ON IBM & IBM COMPATIBLES

- No appointment necessary
- Fast turnaround
- Courteous service
- Experienced technicians

ADD ON BOARDS

AT I/O Card 2S,1P,1G	$20
Mono Graphic/Printer	$20
Color Graphic/Printer	$35
XT Hard Disk Cont	$50
MFM 1:1 HD/FD Cont	$79
IDE Dual HD/FD Cont	$20
SCSI 1:1 HD/FD Cont	$99
DTC 7287 RLL Cont	$80
Orchid Pro Designer w/1MB	$180
Paradise VGA Card	$70
VGA Card w/256K	$40
Oak VGA Card w/512K	$58
Trident SVGA w/1MB	$70
Everex RAM 3000 Expansion Card	$90
Everex RAM 10K Expansion Card	$150

CASES AND POWER SUPPLY

Baby AT w/200W Power	$70
Baby Tower w/200W Power	$70
Mid Tower w/220W Power	$110
Full Tower w/250W Power	$160
200W (XT) Power Supply	$60
200W Power Supply	$60
230W Power Supply	$60

DRIVES

Frame for 3.5" Hard & Floppy Drive	$5
CONNER	
CP-3000 40MB IDE	$160
CP-30084 80MB IDE	$200
CP-30104 120MB 19ms IDE	$220
CP-30204 200MB 16ms IDE	$310
MAXTOR	
LXT-7080A 80MB 19ms IDE	$200
LXT-7120A 130MB 15ms IDE	$220
LXT-213A 212MB 16ms IDE	$310
LXT-340 340MB 13ms IDE	$Call
SEAGATE	
ST-351A 40MB 28ms IDE	$150
ST-3120 100MB IDE	$Call
ST-1239A 211MB 15ms IDE	$Call
TEAC	
360K 5.25"	$60
720K 3.5"	$60
1.2MB 5.25"	$56
1.44MB 3.5"	$56

INTEL MATH CO-PROCESSORS

387 SX-16	$115
387DX-20	$99
387 DX-25	$99
387 DX-33	$99

MEMORY CHIPS

DRAM	
1MBx1-8	$4.50
256K-8/10	$1.25
256Kx4-8	$4.50
64K-10	$1
SIMM	
4MB x9-7	$148
1MBx9-7/8	$43
1MBx3-7/8	$40
SIPP	
1MBx9-8	$45
256Kx9-8	$12

MODEMS

Everex 2400 Baud Internal	$75
Everex 2400 Baud Int. w/MNP5	$150
Everex 2400 Baud External	$175
Everex 2400 Baud Ext. w/MNP5	$195
US Robotic 9600 Baud Internal	$199
US Robotic 9600 Baud External	$219

MONITORS

NEC 3FG	$649
NEC 4FG	$749
Sony 1304 SVGA	$579
14" Monochrome	$105
SVGA Monitor 1024x768 .28dp	$275
SVGA Monitor 1024x768 .39dp	$240
Viewsonic 6	$345
Viewsonic 7	$Call
14" Monochrome VGA	$125
Relisys 14" SVGA Non-Int.	$310
ST 14" SVGA Non-Int. (428-VESA)	$330

MOTHERBOARDS

XT 10MHz Motherboard	$70
286 12MHz Motherboard	$85
386 SX 25MHz Motherboard	$120
386 DX 33MHz Motherboard	$220
386 DX 40MHz Motherboard	$230
386 DX 33MHz Motherboard	$495
486 DX 50MHz Motherboard	$Call

PRINTERS

Citizen 190GX (9 Pin)	$175
Citizen GSX230 (24 Pin)	$249
Citizen GSX230 (24 Pin)	$299
Citizen Color Upgrade Kit	$49
Panasonic 2180 (9 Pin)	$189
Panasonic 2123 (24 Pin)	$245
Panasonic 2124 (24 Pin)	$319
Panasonic 4410 Laser	$629
Panasonic 4450 Laser	$Call
Toner KX-P450	$37
Toner KX-P451	$39.95
HP 51604A	$11.95
HP 51608A	$19.95
HP 92261A	$11.95
HP 92275A	$69
HP 92295A	$83

TAPE BACKUP

Colorado 120MB/250MB	$160/230
External Kit for Colorado Drive	$110

MOUSES

Logitech Trackball	$85
Logitech Serial Mouseman	$70
Microsoft Bus Mouse	$90
Microsoft Serial Mouse	$85
DEXXA Mouse w/Windows 3.1	$75
DEXXA Mouse	$27
Summasketch II	$299
Mouse Systems A3 Mouse for Mac	$75
Mouse Systems A3 Trackball for Mac	$75
Mouse Systems Page Brush/Color Scanner for Mac	$600

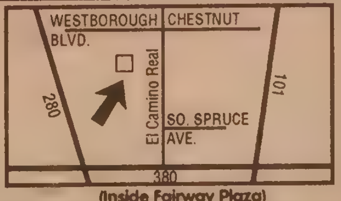
PRINTER RIBBONS & DATA CARTRIDGES ARE AVAILABLE

UNIVERSAL COMPUTER PRODUCTS

951 El Camino Real, South San Francisco, CA 94080
(415) 583-9736 Fax (415) 583-3457
Mon.-Fri.: 9am-6pm Sat: 10am-5pm

VISA MasterCard DISCOVER

Prices subject to change w/o notice • Not responsible for misprints



(Inside Fairway Plaza)

ART COMPUTER TECH INC.

424 S.MAIN STREET., MILPITAS, CA
Tel. (408) 946-7852 * Fax (408) 946-7892

Make us your last stop, We will beat any advertised price

What You See Is What You Get

1 Year warranty
on parts & labor

SPiDER
Graphics, Inc.

SPiDER 32 VLB
$98
(made in USA)
2 years warranty

Be Smart! Join our satisfied customers

AMD, ADAPTEC, CIRRUS LOGIC, UC DAVIS, CONDUCTUS, ASTEC, ALANTEC, SEAGATE, STANFORD UNIVERSITY, UC BERKELEY, LAWRENCE LIVERMORE LAB, ANALOG DEVICES, FRANK & RIVERMAN CPA, ACCUSON, MADERA CITY POLICE DEPT, NASA, ALLIED ENGINEER, TESTERON and many more

BASIC SYSTEM CONFIGURATION: Motherboard & CPU, 1MB memory installed, 1:1 2HD/2FD controller, 1.2 or 1.4 floppy drive, internal clock (Calander, Enhance Case or Mini Tower case with Power supply, and 101 Enhanced keyboard).

SYSTEM	Motherboard & CPU	BASIC system
486DX2-66/256 EISA VESA	$664	$826
486DX-50/256 EISA VESA	$586	$741
486DX-33/256 EISA VESA	$445	$599
486DX2-66/64K ISA	$592	$745
486DX-50/64K ISA	$514	$668
486DX-33/64K ISA	$372	$527
386DX-40/64K ISA	$133	$287
486DLC-33/64K ISA	$201	$355

SPECTACULAR SALE

- * Motherboard w/CPU+4MB RAM 70ns
- * 1.2 and 1.44MB FDD
- * IDE 2FD/2HD Controller
- * AT I/O 2S/1P/1G
- * 120MB or 130MB Hard Drive
- * 1024x768 .28DP 14" SVGA Monitor
- * 512K SVGA Card
- * 101 Enhanced Keyboard
- * Enhanced Case w/230 Watt Power Supply
- * Microsoft Compatible Mouse
- * Mouse Pad

486 DX2-66/128K VESA LOCAL BUS	$1342
486 DX-50/128K VESA LOCAL BUS	1266
486 DX-33/128K VESA LOCAL BUS	1127
486 DX2-66/256K EISA VESA	1271
486 DX-50/256K EISA VESA	1295
486 DX-33/256K EISA VESA	1155
486 DX2-66/64K ISA	1300
486 DX-50/64K ISA	1223
486 DX-33/64K ISA	1084
386 40/64K CACHE	850
486 DLC-33/64K CACHE	917

OPTIONS

-KFC Non-Int	add $30
-Viewsonic 6E Monitor	70
-LocalBus SPiDER	60
-Luminar 24Bits 1MB, 16M colors	30
-Trident 1MB	20
-170MB Hard Drive	30
-200MB Hard Drive	80

SPiDER VLB Plus
$125
(30% faster than Orchid Farenheit VLB)

+ MULTIMEDIA POWER w/CDROM + SOUNDBLASTER PRO + 5 CD Titles
$389

SPECIAL

* ORCHID/DIAMOND 486-66DX /256K
+ Basic system
+ 4 Meg RAM.
+ 250MB Hard drive
+ IDE VLB controller.
+ Farenheit/Diamond VLB SVGA.
+ Non-interlaced (1024x768) monitor.
only **$1659**

NEW HARD DRIVES

40mb/18ms (IDE)	$105
80mb/18ms (IDE)- Conner CP30084E	160
120mb (IDE) Conner CP30104	173
130mb/15ms (IDE) Maxtor 7120AT	173
170mb/16ms (IDE) Conner CP30124	205
213mb (IDE) Maxtor 2213AT	264
240mb/16ms (IDE) Maxtor	275
240mb/15ms (IDE) Quantum LPS240	319
250mb/15ms (IDE) Conner	275
340mb/13ms (IDE) Maxtor LXT340AT	376
500mb/13ms (IDE)	730
1.2 GB - 13ms	1,070

MULTIMEDIA

SoundBlaster Pro 16 ASP	$220
Mitsumi CD ROM w/Card (350ms)	190
NEC CD ROM 84M (280ms)	420
SONY CD ROM 31A (490ms)	295
Creative Lab. CD ROM &Sound card	400
Creative Lab Soundblaster	80
Creative Lab Soundblaster Pro w/MIDI	172
MEDIAVISION Pro 16 CDROM&Sound	880
MEDIAVISION ProAudio Spectrum 16	180
MEDIAVISION ProAudio plus	150
TOSHIBA CDROM 3401 (200ms)	430

RAM&MATH COPROCESSORS

*4MB-70 Simm	$125
*4MB-80 Simm	120
*1MB-60	35
*1MB-70	30
*1MB-80	29
*387SX-20/25	30/35
*387DX-33/25/20/16	60/55/45/35

VIDEO CARDS

Trident VGA-521 (1024x768,16 bit)	$36
Trident 1MB (1024x768,16 bit)	57
Diamond SpeedStar 24X w/Hi color w/1MB	140
Diamond Stealth 24 w/1MB	147
Diamond Stealth 24VESA Local bus w/1MB	169
Diamond Stealth Pro VRAM w/2MB	277
Diamond Viper VESA Localbus w/2MB	391
SPiDER 32VESA Local Bus	98
Luminar 24BITS 16M colors	80
Orchid Farenheit 1280Plus w/1MB	140
Orchid Farenheit Localbus w/1MB	165
Orchid Prodesigner IIs	114
Orchid P9000 VESA Localbus w/3MB	391
ATI Graphic Ultra plus w/2MB	285
ATI Graphic Ultra Pro w/1MB	304
ATI Graphic Ultra Pro VLB w/2MB	380
ATI Graphic Ultra w/mouse	213

MONITORS

Nanao F550i (17",1280x1024,0.28)	$1,018
Nanao F560i (17",1280x1024,0.26)	1,659
NEC 3FGE/ 4FGE	639/743
NEC 5FGE	1,199
MAG 15F (1280x1024,0.28)	546
MAG 17F (1280x1024,0.26)	999
SONY CPD 1304s/1430	529/584
SONY CPD 1604s (17",1024x768,0.25)	939
HITACHI CM-2085(20")/2187 (21")	1243/2128
Super VGA (1024x768) monitor 0.28	241
Super VGA Non-interlaced Monitor 0.28	266
Viewsonic 4E/5E/5+	272/367/467
Viewsonic 6E/6FS/15	310/517/627
Viewsonic 7/8	917/1,497

CONTROLLER CARDS

Orchid IDE VLB	$59
IDE 4FD/2HD	35
IDE cache controller (promise)	110
VESA Localbus IDE	45
IO with 2s/1p/1g	12
Monochrome card	12
Adaptec SCSI 1520/1542B	98/226
Adaptec 1542BK+/1742EISA	297/397
TECO VESA IDE Cache	240

KEYBOARDS

101 Enhanced keyboard	$21
Maxiswitch	31
Keytronics	36
Focus 2001/9000	38/62
Omnikey 102/Ultra	66/89

MISCELLANEOUS

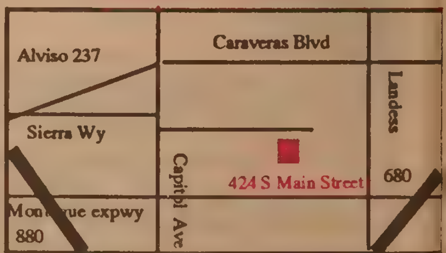
Internal Modem 2400 Baud	$27
Fax Modem (9600 F, 2400 M)/Window	49
Fax Modem (14400 F, 14400 M)	157
3-Button mouse	10
Microsoft mouse	60
Logitech Mouseman serial (4000dpi)	58
Logitech Mouseman Bus (4000dpi)	58
Colorado Tape backup DJ-10 120M	145
Colorado Tape backup DJ-20 250M	194
Colorado Trakker 250MB	392
IOMEGA 250MB Tapebackup	260
Baby AT/Mini Tower case w/230W PS	57
Medium Tower case 2/230W PS	90
Full Tower case w/230W PS	100
Microsoft DOS 6.0/Windows 3.1	45/40

WE only use INTEL CPU for all 486 systems.

ART COMPUTER TECH 386 and 486 are fully compatible wit WINDOWS 3.1, MS-DOS, AUTOCAD, OS/2, Novell, Banyan, UNIX, SCO and other software.

- * Prices & available subject t change w/o notice.
- * We accept VISA & Master car
- * Not responsible for typos
- * Price based on cash prices.
- * Government P.O accept
- * Company Term on credit approval

424 S. MAIN ST
MIPITAS. CA 95035
TEL.(408) 946-7852
FAX.(408) 946-7892
BUS. Hrs M-F -9:30-6:00
SAT&SUN 11:30-4:00



ORCHID

AiM FOR THE BEST !

AMI

Lifetime Labor and 1 Year Parts Warranty **

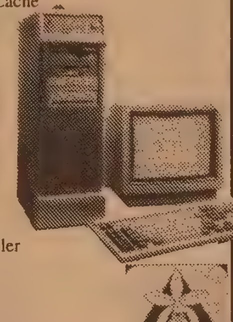
MICRONICS COMPUTERS INC.

FREE Software Installation With System Purchase

We Do Custom Systems Configuration & Upgrade

MYLEX

ORCHID 486- 25/33/50/66 32-Bit VESA Local Bus



- * Intel 486-25SX/33SX/33DX/50DX/66DX2 MHz
- * ORCHID NEW Superboard w/256KB Cache Support Bus Mastering
- * 4MB DRAM Simm 70ns (up to 32MB)
- * 250MB 14ms IDE Hard Drive
- * ORCHID Fahrenheit VLB w/1MB 1280x1024 Max. Resolution 16.8 Million Max. Color Display
- * TEAC 1.2MB Floppy Drive
- * TEAC 1.44MB Floppy Drive
- * KeyTronic 101+ Enhanced Keyboard
- * Microsoft Compatible Mouse w/ Pad
- * ORCHID VESA Local Bus IDE Controller 32-Bit 2HD/2FD VESA Local Bus Max. 8 MB/s data transfer rate
- * 2 Serials, 1 Parallel, & 1 Game Ports
- * Tower Case w/ 230 Watts Power Supply, LED
- * Dual Cooling Fans for 50MHz & 66MHz

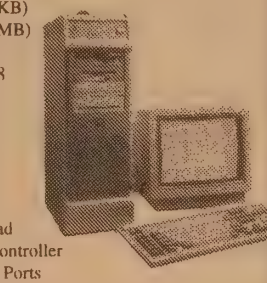
ORCHID

$ 1199 / 1299 / 1399 / 1579 / 1649

SX25 / SX33 / DX33 / DX50 / DX2-66

(Monitor not included)

AiM 486-25/33/50/66 MHz 32-Bit VESA Local Bus



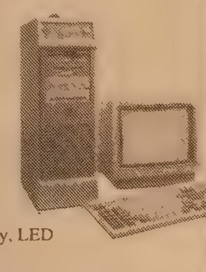
- *Intel 486-25SX/33SX/33DX/50DX/66DX2 MHz
- *128KB Cache Memory (up to 256 KB)
- *4MB DRAM Simm 70ns (up to 32MB)
- *170MB 15ms IDE Hard Drive
- *14" SVGA Non-Interlace 1024x768 0.28dp SVGA monitor
- *ORCHID Fahrenheit VLB W/1MB 1280x1024 & 16.8 Million Color
- *TEAC 1.2MB Floppy Drive
- *TEAC 1.44MB Floppy Drive
- *101 Enhanced Keyboard
- *Microsoft Compatible Mouse w/ Pad
- *VESA Local Bus 2HD/2FD IDE Controller w/ 2 Serials, 1 Parallel, & 1 Game Ports
- *Tower Case w/230 Watts Power Supply, LED
- *Dual Cooling Fans for 50MHz & 66MHz

Pentium Overdrive Upgradeable

$ 1339 / 1419 / 1499 / 1669 / 1749

SX25 / SX33 / DX33 / DX50 / DX2-66

intel® 486-33/50/66 MHz EISA 32-Bit EISA VESA Local Bus



- *Intel 486-33DX / 50DX / 66DX2
- *AIR EISA VESA Local Bus w/256KB Cache 3 VLB Slot Support Bus Mastering
- *8MB DRAM 72 pin Simm 70ns (up to 32MB)
- *AiR AVIEW2V VLB w/1MB (up to 2MB) S3 Chip 32-Bit VESA Local Bus 1280x1024 & 16.8 Million Color
- *TEAC 1.2MB Floppy Drive
- *TEAC 1.44MB Floppy Drive
- *KeyTronic 101+ Enhanced Keyboard
- *Microsoft Compatible Mouse w/ Pad
- *Maxtor 213MB 15ms SCSI Hard Drive
- *UltraStor 34F VESA Local Bus SCSI II Bus Mastering Controller
- *Full Tower Case w/250 Watts Power Supply, LED
- *Dual Cooling Fans for 50MHz & 66MHz

Pentium Overdrive Upgradeable

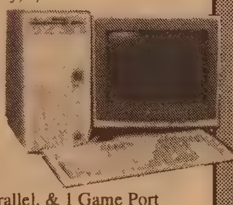
$ 2049 / 2189 / 2249

DX33 / DX50 / DX2-66

(Monitor not included)

Call for **Pentium** Systems

386-25 / 33 / 40 MHz ISA SVGA 85MB HD

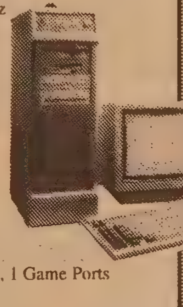


- *386-25SX/33DX/40DX
- *128KB Cache Memory (For 33DX/40DX only)
- *4MB Simm 70ns (For 33DX/40DX only) OR 2MB Simm 70ns (For 25SX/25DX)
- *85 MB IDE Hard Drive
- *14" 1024x768 0.39dp SVGA Color Monitor
- *Trident 9000 1024x768 w/512KB SVGA
- *1.2MB **OR** 1.44MB Floppy Drive
- *101 Enhanced Keyboard
- *Microsoft Compatible Mouse w/ Pad
- *2HD/2FD IDE Controller w/ 2 Serials, 1 Parallel, & 1 Game Port
- *Mini Tower Case w/ 230 Watts Power Supply

$ 749 / 889 / 889

SX25 / DX33 / DX40

486- 25 / 33 / 50 / 66 ISA 64KB Cache 130MB HD



- *Intel 486-25SX/33SX/33DX/50DX/66DX2 MHz
- *128KB Cache Memory (up to 256 KB)
- *4MB DRAM Simm 70ns (up to 32MB)
- *130MB 15ms IDE Hard Drive
- *14" 1024x768 0.28dp SVGA monitor
- *SVGA 1024X786 Graphic Card
- *TEAC 1.2MB Floppy Drive
- *TEAC 1.44MB Floppy Drive
- *101 Enhanced Keyboard
- *Microsoft Compatible Mouse w/ Pad
- *2HD/2FD IDE Controller w/2 Serials, 1 Parallel, 1 Game Ports
- *Tower Case w/230 Watts Power Supply
- *Dual Cooling Fans for 50MHz & 66MHz

$ 1099 / 1199 / 1289 / 1429 / 1499

SX25 / SX33 / DX33 / DX50 / DX2-66

Demo Sales: Call for Listings

Ask for upgrade options on **USA** made AMI, Micronics, Mylex, Nice, Orchid, ... systems

Miscellaneous

Motherboards (386, 486, EISA, Local Bus)	Call
CPUs (Intel/AMD/Cyrix 386, 486)	Call
MathCoprocessor 387/487 (Intel/AMD/ULSI/Cyrix ...)	Call
SIMM Memory Chips (256KB, 1MB, 4MB, 16MB)	Call
SIPP, DIP Memory Chips (256KB, 1MB, 4MB, 16MB)	Call
Hard Drives (IDE, SCSI): Quantum, Conner, Maxtor, Seagate, Western Digital, Teac, Toshiba, Fujitsu, ...	Call
AT I/O 2 Serials, 1 Parallel, 1 Game Port	$15
IDE Controller 2HDs, 2FDs	$15
IDE I/O Controller 2HDs, 2FDs, 2S, 1P, 1 G Port	$20
VESA IDE I/O 32-Bit Controller 2HD, 2FD, 2S, 1P, 1G	$65
Logitech Serial/Bus MouseMan & TrackMan 2	$65/$75
Logitech Scanman 256 w/OCR 400DPI	$279
Microsoft serial mouse	$69
KeyTronic 101+ enhanced Keyboard	$39
Maxiswitch 124 Programmable keyboard	$79
Northgate Omni 101/102 enhanced keyboard	$75
Northgate Omni Ultra 118 key enhanced keyboard	$95
Scout 14.4K/14.4K Fax Modem WinFax + DosFax	$169
Zoltrix 2.4/9.6K Fax Modem w/MNP5, BitFax for Win	$59
TEAC 1.2MB/1.44MB Floppy Drive	$56/52
TEAC Combo Floppy Drive	$125
Dot Matrix,Laser Printer(Panasonic,Citizen,HP,Epson......)	Call
Printer Memory Upgrade	Call
Creative LabsDiscovery CD Upgrade Kit(8-Bit/16-Bit)	$399/449
Edutainment CD Upgrade Kit (8-Bit/16-Bit)	$479/549
SoundBlaster ASP 16/SoundBlaster Pro Deluxe	$219/129
Video Blaster	$339
Media Vision FUSION CD 16 Mutlimedia (Int/Ext)	$479/$509
Pro 16 Multimedia System	$879
Pro Audio Spertrum 16 / Pro Audio Studio 16	$159/209
Logitech Soundman 16	$159
Mitsumi Internal CD-ROM w/ Controller	$189
Sony Internal CD-ROM w/ Controller	$239
Texel Internal CD-ROM SCSI (265ms)	$389
Toshiba 3401 Internal CD-ROM SCSI II (200ms)	$469
Colorodo Tape Backup 120MB/250MB	$149/205
Colorodo Trakker External Tape Backup 120/250MB	$360/419
3M 2120 120MB/250MB Tape	$17
UltraStor 34F VLB Controller (SCSI II Bus Master)	$299
Promise VLB IDE Cache Controller	$199
Printer Switch Boxes, Cables	Call
Shielded Digital Ready Stereo Computer Speakers	$10 & up

And Much More

Monitors

14" SVGA Color Monitor 1024x768 .28	$269
14" SVGA Color Monitor 1024x768 .28 NI	$289
Samsung 14" Sync3 .28mm 1024 SVGA	$279
Samsung 15" SyncM. 15 .28 1024 NI 70Hz	$459
Samsung 17" SyncM. 4+ .28 1280 NI 70Hz	$819
Samsung 17" SyncM. 5c .26 1280 NI 72Hz	$899
ViewSonic 4E/6E 1024x768 .28	$289/339
ViewSonic 5E 1024x768 .28 NI 72Hz	$399
ViewSonic 5+ 1024x768 .25 NI 70Hz	$499
ViewSonic 6FS/15 15" .28 70Hz Flat	$535/$630
ViewSonic 7/17 17" .28 NI 72Hz	$949/1199
ViewSonic 8/20 20" .31 NI 72Hz	$1550/1890
SONY 1430/1604S 1024 .25 72/70Hz	$589/999
NEC 15" 3FGe 1024x768 .28 NI 60Hz	$649
NEC 15" 4FGe 1024x768 .28 NI 70Hz	$749
MAG 15" 15F 1280x1024 .28 72Hz	$575
MAG 17" Flat 1280x1024 .28 72Hz	$1049
Nanao 15" Flat 1014 .28	$735

And Much More

Graphic Cards

Trident 9000 1024x768 w/512KB	$45
Trident 8900C 1024x768 w/1MB	$59
REALTEK 1024x768 w/1MB & Hi Color	$59
Paradise Graphic Accelerator w/1MB&Hi-C	$139
Orchid Fahrenheit VESA VLB w/1MB	$169
Orchid Fahrenheit VESA VLB w/VA 1MB	$199
Orchid Fahrenheit Plus w/1MB & Hi-Color	$159
Orchid P9000 VLB w/3MB & True-Color	$399
Orchid Celcius VLB w/1MB & True Color	$239
Diamond 24X w/1MB & True-Color	$179
Diamond Stealth 24VLB w/1MB True-Colo	$189
Diamond Stealth Pro VLB w/1MB VRAM	$255
Diamond Viper VLB w/2MB & True-Color	$389
ATI Ultra Graphic Pro w/2MB VRAM VLB	$449
Genoa 8500VL 24-Bit Accelerator	$119
ATI Ultra Graphic Pro w/2MB(MCA,EISA)	$549
ATI Ultra Graphic Pro w/2MB VRAM ISA	$529
SummaSketch III 12x12 4 or 16 Buttons	$309

And Much More

Softwares

Microsoft DOS 5.0	$20
Microsoft DOS 6.0 Upgrade (NEW)	$48
Microsoft DOS 6.0 Full Version	$42*
IBM OS/2 Version 2.0	$29
Microsoft Windows 3.1	$35
Microsoft Access for Windows	$89
Microsoft Excel 4.0 for Windows	$125
Microsoft Entertainment Pack 1-3	$30@
Microsoft Flight Simulator 4.0	$38
Microsoft Word 2.0 for Windows	$125
Lotus Improv for Windows	$99
WordPerfect for Windows 5.2 (NEW!)	$115
BitFax for Windows w/OCR & BitCom	$69
CD-ROM Software Package (5 CDs)	$89
FrameMaker 3.0 for Windows	$309
Norton Utilities 7.0 (NEW!)	$99
QEMM 386	$59

And Much More

AiM Computers

1741-C Clayton Road, Concord, CA 94520
TEL: (510) 687-2822
FAX: (510) 687-5276
Hours: M-F 10-6:30
Sat 10-5:00

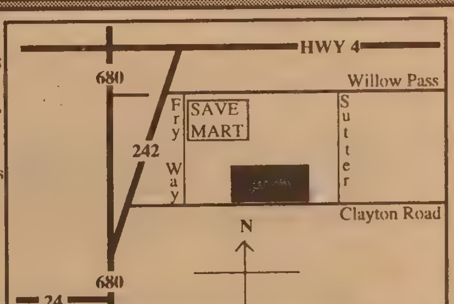
VISA MasterCard

AiM Quality Guarantee

*** Lifetime Labor & 1 Year Parts**
*** 72 Hours Burn-In**

Prices subject to change without notice
Not responsible for typographical errors
Trademarks are registered by the respective companies
Contents subject to change without notice
** Limited warranty, see store for detail
* w/ System purchase

100% Financing & Leasing Available



Get ready for Summer with a great deal from HSC!

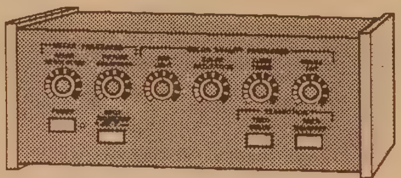
Now Available...New HSC Catalog!!

Months in the making... our new 48-page catalog listing thousands of electronic essentials! Send $1.00 (or free with order) and thanks for waiting patiently!

Video Processor won't break your Budget!

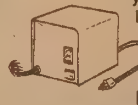
Now you can enhance your video productions without cleaning out your wallet! The Sunburst High Definition Video Processor gives you contol over the quality of your video tape images to correct problems encountered during taping. Four color controls allow you to adjust "sunlight" (brightness), color saturation (really gives life back to washed-out videos), flesh tones and color tint (useful for videos taped with a camera that did not have color balance set). Two other controls let you adjust image resolution and picture sharpness, while a pair of controls let you suspend the processing so you can see the effect of what your are adjusting. Switchable between two different inputs (video only, not RF). Inputs and outputs are RCA jacks. New in box with manual, 90 day warranty. Won't last at this price!

HSC# 13978 **$49.95**



Triple Supply, Ready to go!

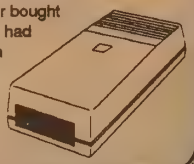
If you are doing any electronic prototyping or circuit development with a solderless breadboard, this would be a great power supply to use. Since it is a linear design, and not a switching power supply, you can use light loads without worrying about loss of regulation. 5 VDC @ 10 A, ±12 VDC @ 1 A each. Already in a case with fuse, switch and line cord. Perfect for many digital and Op/Amp projects. 5" x 5" x 7.5"



HSC# 13805 **$19.95**

Budget Disk Drive Case/Power Supply

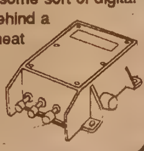
Here is the answer to your expensive disk drive enclosure blues...a large manufacturer bought these units to remove the drives and had leftover cases. What to do? Sell them to you! Plastic case and bracket with beefy linear power supply will work with any half-height 5.25" drive (needs drive power connector, cable exit hole).



HSC# 13850 **$19.95**

Military-Grade Project Box

Nothing's too good for the U.S. Army, right? Wait till you see this high-quality weatherproof box! This unit is some sort of digital display module with a bank of LED digits behind a window, but frankly we're selling this for the neat enclosure! Cast aluminum 6.125" x 1.75" x 3.5" wide (excluding mounting ears), gasketed top, waterproof switch, pot and binding posts. Accepts 2.5" x 4" PC board.



HSC# 13844 **$9.95**

Windows Software Sale!

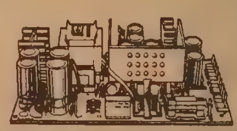
Customize your Windows environment without going broke! These two programs by Aristosoft will give your computer undreamed-of capabilities! *Wired for Sound* can use your PC speaker or sound board to produce a digitized sound at specified events. (Works with Windows 3.0 only). *More Windows* tums your Windows screen into a larger "virtual" screen, adding up to 300% more area!

Wired for Sound	**HSC# 13769**	**(was $8.95)**	**now $4.95**
More Windows	**HSC# 13770**	**(was $19.95)**	**now $9.95**

Small Power Supplies, Big Savings!

These tiny switching power supplies are small in size only! They are big on performance and value, and are perfect for use with 3.5" or smaller hard disk drives. Similar to illustration at right.

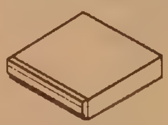
A.	2" x 6.25" x 1.25"	Skynet, used, tested good. 110/220VAC input, 5VDC @ 2A, 12VDC @ 1.5A output.	HSC #12758 $17.50 ea.
B.	3" x 5" x 1.5"	Protek, new. 110/220VAC input, 5VDC @ 3A, 12VDC @ 2A, -12VDC @ .3A output.	HSC #13728 $14.95 ea. *Special!*



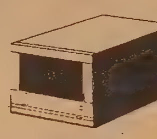
Let HSC be your SCSI Hardware Headquarters!

All drive enclosures feature fan-cooled power supplies, SCSI address switches and ICN50 connector knockouts. Styles A&B include ribbon cable, the others do not. Inquire about our selection of SCSI cables when ordering.

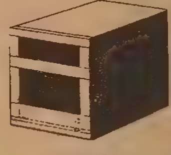
A.	SKHD1	55W P.S.,	Room for single internal drive, fits under a Mac!	10" x 10" x 2.25"	$99.95
B.	SKHD1/Open	55W P.S.,	Same as above, but with 5.25" front opening	10" x 10" x 2.25"	$99.95
C.	SLHD2	60W P.S.,	Front opening for two half-height drives.	7.5" x 12" x 6.5"	$119.95
D.	SLHD3	60W P.S.,	Front openings for three half height drives	7.5" x 12 x 9"	$139.95



Style "A", "B"



Style "C"



Style "D"

Project box you can have three ways!

This is the type of deal we love to offer our customers, because it has so much potential. We bought these items for the neat case, but then discovered that the unit inside has a wealth of possibilities. We offer some suggestions, let your imaginations run wild!

Option #1 -- Weathertight Equipment Case will accept a 19" standard rack-mount unit up to 5" high (with standard 5.25" front panel) and 11" deep. Gasketed front cover has cable storage clips, case has storage slot for .5" thick manual above unit. Outside dimensions are 20" x 7" x 15" deep, exclusive of rubber feet, four sturdy latches and spring-loaded carry handle. Weight 11 lbs. Constructed of aluminum, Navy grey color. Perfect for ham gear (field day!), instrumentation, or other projects requiring rugged, weathertight Mil-spec. case.

HSC# 14032 **$29.95**

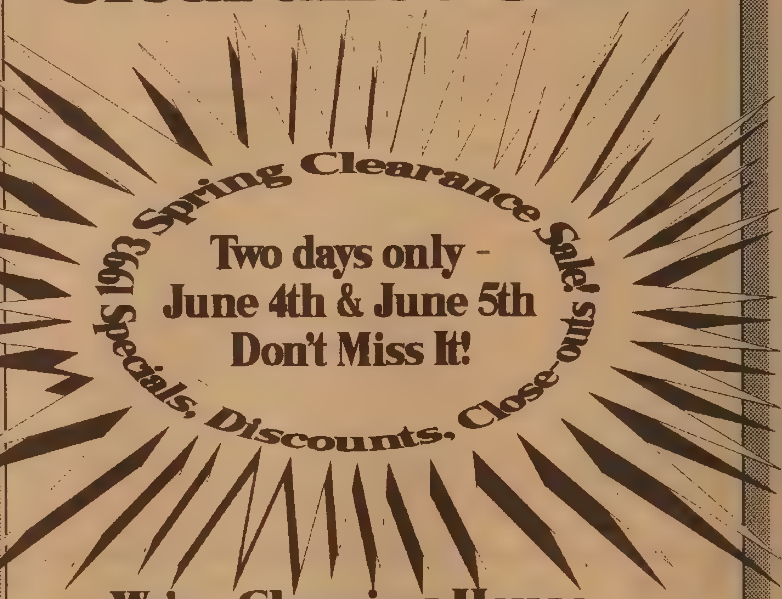
Option #2 -- Frequency Converter Unit (removed from case above) Mod. CV-2353/U was used to mix external signals from 100 Hz to 2 MHz with an external oscillator signal for output to a spectrum analyzer. It also has a 3 MHz signal source that may be applied to the spectrum analyzer. We weren't too excited about this unit until we noted the high quality of construction of several nifty RF modules inside. It uses 115 VAC, has a balanced mixer, a ultra-stable VFO (2.985 - 3 MHz) with a beautifully clean sine-wave output, 600Ω step attenuator, stable -15 VDC power supply, and a 2.5 MHz IF amplifier module. We tested one, and after warmup the VFO drifted only 25 Hz! You could add a crystal oscillator and use the balanced mixer for a QRP Transmitter, or add a detector and modify the VFO for the desired band and have a HF receiver, use as a stable signal generator for HF, or you could add frequency multiplier stages for a stable VHF RF source, etc. Includes power cable, three BNC cables, manual w/ schematic. Unused!

HSC# 14033 **$19.95**

Option #3 -- Buy both units above, only **$44.95**! What a deal!

Halted specialties co. HSC announces...

1993 Spring Clearance Sale!



Two days only -
June 4th & June 5th
Don't Miss It!

We're Cleaning House...
...and you get the deals!

Stop by any of our three stores and take advantage of the clean-up deals! You'll find major savings in nearly every department, and hundreds of one-of-a-kind specials! Take a look at our new 99¢ aisle! And remember, our Huge 30th Anniversary Parking Lot Sale at our Santa Clara store is set for September 18!

Halted specialties co. HSC Electronic Supply

Toll Free (Orders Only) 1-800-4 HALTED (1-800-442-5833)

Retail Stores:

3500 Ryder St., Santa Clara, CA 95051 (408) 732-1573
4837 Amber Ln., Sacramento, CA 95841 (916) 338-2545
6819 Redwood Dr., Cotati, CA 94931 (707) 792-2277

MasterCard
AMERICAN EXPRESS
VISA

Terms: Some quantities limited; all items subject to prior sale. **Minimum order: $10.00 plus shipping.** Orders under $20.00 subject to $2.00 handling fee, in addition to shipping. All orders shipped FOB Santa Clara, CA (this means you pay freight!) by UPS Surface (no P.O. Boxes) unless otherwise specified, in which case prevailing carrier rate plus $5.00 handling fee applies. Prepaid orders that don't include shipping charges will be shipped freight COD. There is a $4.00 UPS charge added to shipping charges for COD shipments. If you have questions about your order, please call Customer Service at (408) 732-1854 M-F 9AM to 5PM PST.

Tel: (408) 496-6853
Fax: (408) 988-0359

ASA COMPUTERS, INC

2354 Calle Del Mundo, Santa Clara, CA
Open Mon - Fri 9 - 6:30; Sat 10 - 4

Coupon Coupon

Sound Blaster Discovery 8 Int
Sound Blaster Pro Deluxe 8bit Creative Labs Int CD-ROM Drive, Stereo, Speakers Free Softwares: Software Toolworks, Multimedia Ency, Animals, Windows MPC Compliant
..............$385

Sound Blaster Edutainment 16 Int
Sound Blaster 16 ASP (DSP) Creative Labs Int CD-ROM Drive, Stereo, Speakers, Software Toolworks, Multimedia Ency, Secret Weapons of the Leutmaffe, Secret of Monkey Island & loom, Carmen Sandiego, Just Grandma & me, Sherlock Holms, Win 3.1, MPC Compliant
..............$509

Hottest CD and Sound Card
Toshiba 3401B Int w/Pro Audio Spectrum 16, 200ms, 330kb/sec, 256 cache buffer, CD Photo multi session, XA, SCSI-2 PA16 Card, Caddy, w/Speakers, SCSI Cable
................$565

14" Monitors
1024x768, .28 Dot Pitch, Inter/Non-Inter
...........$229/259

...No Refunds........................
...Valid Upto 6/17/93..................
...Cash or Company Check Only...............
....One Coupon per Customer...

SYSTEM CACHE 64K on all DX MBs $25 more for 256K	Basic System M/B, 1MB mini tower IDE/2SPG 1.44 FDD 101 K/B	Basic System +40MB ide 14" mono Mon MGP Card	Basic System +40MB ide 13" vga Color VGA Card	Basic System +80MB ide 14" SVGA .39 SVGA 512 Card Total 4MB 5/17/93	Basic System +120MB ide 14" SVGA .28 SVGA 1MB Card Total 4MB +1.2 Floppy	Basic System +200MB ide 14" NI SVGA .28 SVGA 1MB Card Total 8MB +1.2 Floppy	Basic System +340MB ide 14" NI SVGA .28 SVGA 1MB Card Total 8MB +1.2 Floppy	Basic System +340MB ide 14" NI SVGA .28 SVGA 1MB Card Total 8MB +1.2 Floppy CD-ROM
486DX2-66 VLB	$800	VLB Machines have VLB IO/IDE and VLB 1MB SVGA				$1,752	$1,842	$1,967
486DX-50 VLB	$718				$1,427	$1,669	$1,759	$1,884
486DX-33 VLB	$569				$1,278	$1,521	$1,611	$1,736
486DX2-66 EISA	$861	Free mouse w/ all systems			$1,497	$1,740	$1,830	$1,955
486DX-33 EISA	$630				$1,266	$1,509	$1,599	$1,724
486DX2-66 ISA	$758		$1,026	$1,278	$1,395	$1,638	$1,728	$1,853
486DX-33 ISA	$527	$726	$795	$1,047	$1,164	$1,407	$1,497	$1,622
486SX-25 VLB	$357	$556	$625	$876	$994	$1,236	$1,326	$1,451
486DLC-33 ISA	$323	$522	$591	$842	$959	$1,202	$1,292	$1,417
486SLC-25 ISA	$280	$479	$548	$799	$917	$1,159	$1,249	
386DX-40 ISA	$290	$489	$558	$809	$926	$1,169		
386SX-33 ISA	$230	$429	$498	$750	$867			
286-20 ISA	$205	$404	$473	$724	$842			

Corporate Buyers
48 hrs On-Site plan available

......................TOP OF THE LINE LOCAL BUS GRAPHICS/CAD WORKSTATIONS..........

SPECS	DIAMOND	ATI	ORCHID	NUMBER NINE	MUSTANG	PEGASUS
Motherboard	DIAMOND Fastbus	MICRONICS MX-30**	ORCHID	AMI Super Voyager**	MUSTANG**ISA/VESA	MUSTANG**EISA/VESA
Power	486-66 256K CACHE	486-66 256K CACHE	486-66 256K CACHE	486-66 256K CACHE	486-66 256K CACHE	486-66 256K CACHE
Video Power*	50 winmark	26 winmark	50 winmark	42 winmark	16 winmark	16 winmark
RAM	8MB-70 exp to 128MB	8MB-70 exp to 64MB	8MB-70 exp to 32MB	8MB-70 exp to 64MB	8MB-70 EXP TO 32	8MB-70 EXP TO 256MB
BIOS	DIAMOND	PHOENIX	AMI	AMI	AMI	AMI
Exp. Slots	2 VESA, 5 ISA	2 VESA, 6 ISA	2 VESA, 5 ISA	2 VESA, 6 ISA	2 VESA, 5 ISA	2 VESA, 6 EISA
Floppy Drives	1.2, 1.44 Teac Drives	Same	Same	Same	Same	Same
HFC/IO	32 bit orchid VLB	32 bit orchid VLB	32 bit orchid VLB	32 bit orchid VLB	32 bit orchid VLB	Promise w/2MB Cache
Case,230 UL	Med Tower 230 PS	Same	Same	Same	Same	Same
Keyboard	Keytronic/Maxi Switch	Same	Same	Same	Same	Same
Video Card	DIAMOND-VIPER	ATI-ULTRA PRO	ORCHID CELSIUS 9000	LEVEL 11	ORCHID Farenheit	ORCHID Farenheit
Spc. Features	2MB VRAM	1MB VRAM	1MB VRAM	2MB RAM	1MB DRAM	1MB DRAM
	1280X1024X256Clr 74Hz NI	1280X1024X16Clr 74Hz NI		Virtual rsltn upto 2048x1024	1280x1024 16clr 60Hz NI	1280x1024 16clr 60Hz NI
	1024x768x66kClr, 76Hz NI	Same	Same	1024x768x66KClr, 100Hz NI	1024x768 256clr 72Hz NI	1024x768 256clr 72Hz NI
32bit Proc	WEITEK P9000	MACH32	WEITEK P9000	S3 928 GUI Accelerator	S386C805	S386C805
Video Mnfr #	408-736-2000	416-756-0711	510-683-0300	617-674-0009	510-683-0300	510-683-0300
Price	$1,644	$1,784	$1,544	$2,094	$1,414	$1,904

All CPUs have a cooling fan with heat sink. * PC magazine 2.5 **Intel Pentium Socket

Add Hard Drives, Monitors, Multi Media Components, And other peripherals as per your need. [Look at our other pages for specs and prices.]

Coupon Coupon

15" Monitors
Mitac 1280NI, .28 Dot Pitch, MAG 15F 1280NI, .28 Hitachi CM 1785MV, 1280NI, .28, MRP II
.........$399/536/479

17" Monitors
MAG 17F 1280, .26, MRP II SAMPO 1766B, 1280NI, .31 Hitachi CM 1785MV, 1280NI, .28, MRP II
.......$975/649/889

20" Monitors
SAMPO 1280NI, .31 Hitachi CM 2085, .28
..........$969/1229

21MB Floptical
SCSI Int w/5Diskettes YE-DATA
..............$349

340MB/520MB
WD340 IDE 12ms FUJ 520 IDE/SCSI 12ms, 5Yr Warranty
...........$339/725

1.2 GB/1.7GB HD
MXT 1.2GB, 5.25", 13ms MXT 1.7GB, 5.25", 13ms
..........$959/1179

....Available at Participating ASA stores only..........
.....Not valid with any other promotion.........
.......Walk in service only..........
............Limited Stock...............
................No Demo..................

Tech Support: (408) 496-6967 Mon - Fri 9 - 5

International Orders via Fax: (408) 988-0359

MICRO MARKETPLACE

ASA COMPUTERS

On-Site Service

On-site service available
San Francisco Bay Area
Continental USA
Corporations please enquire
when ordering full systems.

14" TERMINAL
LAN READY-VGA

(Incl. Monitor and K/B)

$369.00

LOCAL BUS

MOTHERBOARDS

(Many of our new M/Bs have Pentium Socket)

Mustang 486SX-25 ..(upgrdbl)	**$234**
Mustang 486-33/50/66 w/256k	**$425/581/659**
MustangVLB 486-33/50/66...w/256k.........w/Pentium Socket	**$450/606/684**
PEGASUS VLB EISA/VESA..PENTIUM READY......486-33/50/66 w/256k	$712/865/945
ORCHID 486-33/50/66-256	$510/665/745
DiamondFstbs 33/50/66.w/Idelo	**$634/790/869**
Micronix 486-33/50/66	**$735/868/980**

CONTROLLERS

DTC 2270 8.3MB/sec IDE / IO	$81
Mustang IDE/IO	$52
ORCHID IDE/IO vlb	$68
Mustang IDE/IO Cach15.6mb/sec	$198
UltraStor SCSI 34F, 32k Card..10mb/sec.	$269
UltraStor SCSI 34F, 32k Kit	**$329**

GRAPHIC ADAPTERS

(wm = winmark ver2.5)

DIAMOND Stealth 24vlb S3-805.1mbdram	**$164**
DIAMOND Stealth pro 1/2MBram,36wm	**$265/340**
DIAMOND Viper 1/2MB,9000,50wm	**$330/405**
ORCHID Fahrenheit S3-805,1/2MB	**$175/220**
ORCHID Same w/voice annotation	**$219/call**
ORCHID Celsius 9000	**$419**
GENOA ET4000	**$149**
GENOA 8500VL, cirrus logic	**$136**
GENOA 8700VL, S3-805	**$180**
ATI Ultra Pro, 2MB, 26wm	$395
Mustang VLBCirrus logic1/2MB	**$94/129**

PORTABLES

NOTEBOOKS

TWINHEAD SLIMNOTE

386 SXL-25, 2MB, 60MB / 80MB	$1294 / $1339
486 SLC-33, 2MB, 80MB/130MB	$1650 / $1794

LEADING EDGE

386 SXL-25, 4MB, 80MB	$1431
386 SL-25, 2MB, 80MB, COLOR	**$1980**

CHAPLET/SUNRACE

386 SX25, 4MB, 80MB/120MB	$1199 / $1399
486 SLC, 2MB, 80MB/120MB	**$1475 / $1599**

(........the only notebook w/SCSI port........)

Call for high end notebooks and notebook accessories..............................

LAPTOPs

More Power than any Compaq, Toshiba or Doulch ....

Powerful Portable PC / Laptop under 15 Lbs; Upto 486DX2-66 CPU; 32 MB RAM; 256K Cache;1.2 GB Hard Disk Drive; Black / White VGA LCDPanel; SCSI or One 3/4 AT (ISA) slot Expandability; **Multiple Platform Compatibility - OS/2, Win 3.1, Windows NT..............................**

XPression Color Overhead Projection System; w / Color Active Matrix LCD Panel based; ....Ask for Paul at (408) 496-6186

Raid Disk Arrays

Support of RAID levels 0,1, and 5; 5 Channel Multi-thread I/O;Hot swap of drive;Novell, SCO UNIX, DOS.....

Ask for **Paul** at [408] 496-6186

Disk Pack Drives

Bootable, Portable, Mechanically protected Bases and Disk Packs Millitary/Government/Corporate ....data security usage

Ask for Paul at [408] 496-6186

MOTHERBOARDS

(Many of our new M/Bs have Pentium Socket)
Also See Local Bus Section

286-12/20	$44/59
386SX-33/40	$78/89
Stallion 386DX-40 w/64k Cache	**$138**
Stallion 486SLC-25 Cyrix	**$143**
Stallion 486DLC-33/40 w/64K	**$183/235**
Stallion 486SX25	**$209**
Stallion 486DX-33 w/64k	**$385**
Stallion 486DX-33 w/256k	**$415**
Stallion 486DX-50 w/256k	**$571**
Stallion 486DX2-66 w/256k	**$649**
Stallion EISA 486DX-33 w/256k	**$488**
Stallion EISA 486DX-50 w/256k	**$645**
Stallion EISA 486DX2-66 w/256	**$722**

VESA Motherboards.....see Local Bus Section

Call for pricing of M/Bs w/o CPU

CONTROLLERS

IDE 2FD/2HD	**$12**
IDE 4FD/2HD	**$33**
IDE w/ 2SPG..gen/WD	$16/26
IDE Caching UltraStor	**$199**
IDE EISA DTC	$135
MFM ST21M	$37
RLL 4FD/2HD	$69
Kouwell 531 4Port Serial 16C550	$69

SCSI

Future Domain Comp	**$52**
DTC	$99
ADAP 1522B,C/Kit	**$90/140**
ADAP 1542C/Kit	**$205/255**
ADAP 1742 EISA	**$429**
DTC EISA Caching	$485
MYLEX EISA Caching	**$565**
DPT Smart Cache+EISA	$540

ESDI

DTC	**$119**
Maple 64K new version	**$130**
Ultra 12F 32K	**$164**
Ultra 22F Caching EISA	$449
XT FDC360/1.2	**$13/24**
XT HDC	$45

ADAPTERS

(See Local Bus and CAD Sections too)

MGP	$12
Color Card	$23

VGA/SVGA

VGA 256k	$25
Trident 512K/1MB	$38/55
Tseng 1MB	$75
Mustang 1MB Window Accel	$84
Diamond Speedstar 24X	**$159**
Diamond Stealth 24	**$164**
Fahrenheit Plus wo/w VA	$165/219
ATI Ultra Grpx 1MB w/Mouse	**$239**
ATI Ultra Plus w/2MB	**$329**
ATI Ultra Pro w/2MB	**$369**
Hercules Graphite	**$289**

Fault-Tolerant Servers

w/ Disk Mirroring, Disk Duplexing, Synchronous Disk Support.
Novell, SCO Unix, DOS, OS/2....
Ask for **Paul** at [408] 496-6186

Export PCs.

386-SX33M/B,1MB,1.44 and 1.2 FDD, 40MB HDD, IDE/2SPG, most languages K/B,Mouse, 100/220V

13" VGA/14" SVGA....$569/629

MONITORS

MONO

Mono 12"	$73
Mono 14"	$89
Mono 9" VGA	$135
Mono 14" SVGA 1024 x 768	$109

VGA/SVGA

VGA 13" .28 Color.......ref	**$150**
VGA 14" .41 Color......ref	**$159**
VGA 14" 640 x 480, .51 / .41	$166 / 197
SVGA 14" 1024 x 768, .39 dpi	$199
SVGA 14" 1024 x 768, .28 dpi	**$237**
CTX Autoswitch 1024, .28 dpi	$255
SVGA 14" 1024x768 .28 NonInt	$263
Black SVGA 1024,.28 dpi	**$279**
CTX 14" 1024 .28dpi Hitachi NI	**$299**
Viewsonic V6E 14", 1024 .28 NI	$343
Sony 1304S 14" .25 dpi Low Rad NI	$545
Mitac 1564S15" .28 dpi 1280 x 1024	**$399**
Samsung15" NI Flat .28dpi 72 Hz	$449
Mitac 17" .31dpi 1024 72Hz NI	**$599**
Samsung 17".26dpi 1280NI Microp	$899
Maganavox20" 1280 x 1024 NI	**$1285**

See Many High-End Monitors in the Engineering/CAD Section.

CASES/PS

Baby Desk/Tower w/ PS	**$49**
Medium Tower/Full AT w/ P	**$77/69**
Full Tower/Super T. w/PS	**$89/155**
Rack Mount W/PS	**$299**
File Server w/ 400W PS, 3 Fans..............12 F/HDD, black/beige	**$494**

DIAMOND (Black/Beige)

Baby Desk/Tower w/PS	**$79/82**
Medium Tower Reg/Big w/PS	**$89/119**
Full Tower w /PS	**$129**

External HDD Cases

1 HH...65 W	**$89**
1 FH/2 HH...65W	**$110**
2 FH/3 HH...65W	**$137**
SCSI Cables Int/Ext	**$9/10**

Power Supplies

XT Power Supply	**$34**
PC Power XT Turbo Cool 230	**$80**
220 AT	**$46**
PS2 200/300W	**$40/95**
Full Tower 230W	**$58**
Full Tower 300/400	**$80/154**

KEYBOARDS, MICE

Spill Resistant/Mitsum	$19/17
MaxiSwitch / M-Click	$31/34
KeyTronic	$35
BLACK 101	$39
SEJIN J-Mouse (mouse under 'J' Key)	**$89**

Also line of European/Arabic KBs

S-Mouse/TBall	$10/25
LogiTech First/2btn Ser	$39/19
LogiTech MouseMan Ser/Par	$64
Microsoft Original	$69
BLACK SERIAL	**$19**

Tel: [408] 496-6853 ASA COMPUTERS Fax: [408] 988-0359

DRIVES

Floppy Drives

YE Data 1.2/1.44MB	$50/45
Teac 1.2/1.44MB	$54/48
Teac Dual Floppy 1.2 + 1.44 MB	$125
YE Data/Teac 2.88 MB	$82/89
Toshiba 2.88MB	$65
.....w/contl & 2.88 floppy disk	$94

IDE

ST/CON 40MB 25 msec	$109
CON 60/80MB 19 msec	$145/166
QUN 85MB 17 msec	$175
CON 120MB 19 msec	$179
QUN 127MB 17 msec	$199
MXT 130MB 15 msec	$195
CON 170MB 17 msec	$205
CON 212MB 12 msec	$267
MXT 213MB 15 msec	$259
QUN 240MB Fast	$305
MXT 245MB 15 msec	$266
CON 340MB 12 msec	$365
WD 340MB 12 msec	$352
MXT 345MB 15 msec	$352
FUJ 330MB 12 msec 5yr	$565
FUJ 425MB 12 msec	$539
QUN 525MB Fast	$865
FUJ 540MB 12 msec 5yr	$762
CON 540MB 12 msec	$799
MXT 535MB 12 msec	$879

MFM

ST80......full h	$259

ESDI

MXT 338 / 670MB	$995 / 1190

SCSI - 3.5"

QUN 85/127MB 17 msec	$180/209
MXT 130MB 15 msec	$210
CON 170MB 17 msec	$218
MXT 213MB 15 msec	$288
CON 212MB 12 msec	$288
QUN 240MB Fast	$318
MXT 340MB 15 msec	$549
FUJ 520MB 11 msec 5 yr	$769
QUN 525MB Fast	$870
CON 540MB 12 msec	$789
MXT 535MB 12 msec	$895
MXT 540MB 8 msec Magix	**$889**
QUN 700MB <10 msec	$1119
TOSH 877MB 12.5 msec	**$925**
MXT 1.2GB 8 msec Magix	**$1259**
ST 1.2GB 10 msec	$1089
FUJ 1.2GB 10 msec	$1225
QUN 1.2GB <10 msec	$1269
TOSH 1.2GB 12 msec	**$1149**

SCSI - 5.25"

FUJ 650MB 12ms	$593
ST 670MB 14/11 msec	$1019/1326
ST 1.2GB 14 msec	$1089
MXT 1.2GB 13 msec Panther	**$1009**
FUJ 1.2GB 14 msec	$1089
MXT 1.7GB 13 msec Panther	**$1249**
ST 1.7GB 14/11(Elite 1) msec	$1289/1759
FUJ 1.7 GB 11 msec	$2082
ST 2.1GB 14 msec	**$1659**
Fuj 2.1GB 12 msec	$2250
ST 2.4GB 11 msec Elite II	$2363
ST 3.4GB 11 msec	$2985

EXTERNAL HARD DRIVE SUB-SYSTEMS

We Integrate External Hard Drive Sub-Systems
To configure your Hard Drive Sub-System select a set of HDDs and an external case, from this AD that would suit your needs........................

Integration Charges...................$19.99Drive
(External and Internal Cables are be added)

TAPE BACKUP

(<500MB TAPE-BACKUPs)

Colorado 120 / 250MB	$145 / 197
...Colorado KE-10 External kit with card	$105
....Colorado External port card	$37
...FC-10 high perf card	$85
Colorado Trakker 120 / 250MB	$344 / 404
Summit Express 305MB 10Mb/sec	$264
Archive Viper 250MB hh SCSI I/E	$349 / call
Archive Viper 250MB w/QIC,15MB/min,1"H	$179
....w/Central point SW add	$20
Viper 525MB hh SCSI Int/Ext 6MB/sec	$549/950

(>500MB for PC / SERVER)

Colorado 700MB	689
.......FC-15 high perf card	$181
Colorado 2.4 / 4.0 GB Qic 5.25	$969 / 1499
YE DATA 1.2GB SCSI...DAT	**$529**
Python 4[8]GB 3.5" DAT SCSI .5m I/E	$1195/1587
HP 2GB DAT 4mm Int/Ext	$1095/1245
HP 5GB DAT 4mm Int/Ext	$1320/1475
MAYNARD 2GB 4mm DAT Int/Ext	$1890 / 2060
MOUNT FS1200 4mm DAT Int/Ext	$1840/2133
EXABYTE 2GB 8mm DAT HH Int/Ext	$1485 / 1815
EXABYTE 8250 5GB HH 2yrs Int/Ext	$1795 / 1875
EXABYTE 8505 10GB HH 2yrs Int/Ext	$2475 / 2770

..(above drives require special contr & soft drivers)

TAPE BACKUP DRIVERS

NOVASTOR

Novaback for DOS	$89
Novaback for OS/2	$89
Novanet Multiuser NLM	$439
SYTOS for DOS/NOVELL, GEN	$185
ARCserve Solo	$185

OPTICAL DRIVES

ERASABLE(Rewritable)

TEAC 128MB 3.5" Int	$835
RICOH 5031E Internal 650MB	$2250
PINACLE MICRO 650MB 19msec	$2995
PANASONIC 1GB Internal	$2489
MAXOPTIC 1GB Tahiti IIM 35msec	$2685
PINACLE MICRO 10GB 19msec Ext	**$7995**

SUPER hard DRIVES

Seagate Barracuda 3.5" HH (8 msec avg. seek, 4.17 msec lat., 7200 RPM)
Barracuda 1.7 / 2.5 GB..........July / August

FLASH Card Hard DRIVE

ST 75A 1.8" 5.2MB IDE < 1.5ms	call
ST 710A 1.8" 10.4MB IDE < 1.5ms	call
ST 720A 1.8" 20.9MB IDE < 1.5ms	call
ST 740A 1.8" 41.9MB IDE < 1.5ms	call

STORAGE MEDIA

Floppy 1.44 Bulk	$.79
Floppy 1.2 Bulk	$.49
Tape DC2000XL	$18
Tape DC2120 250MB..Formatted	$18.5
Tape DC 6250 5.25", 1/4" Cartridge	$27
Tape DC 6525 5.25", 1/4" Cartridge	$31
TK50 for DECs	$26
DT-2400 2.4GB .25" Cartridge	$54
DT-4000 4.0 GB .25" Cartridge	$57
DAT 4mm 60/90 mtr	$19/29
DAT 8mm 54/112 mtr	$18/24
Syquest 44MB Cart	$63
Syquest 88MB Cart	$96
Syquest 105MB Cart..(IDE)	$96
Bernoulli 44MB 3Pk	$315
Bernoulli 90MN 3Pk	$415
Magneto-Optical 650MB Cartridge	$159

OPTICAL CARTRIDGES

600MB 5.25"	$109
650MB 5.25"	$109
128MB 3.5"	$59
10024 B/S WORM 5.25"	$109

SOFTWARE

Utilities

Norton Anti Virus2.1 / Utilities6.01	$81/107
PC Tools 7.1 w/Antivirus	$99
MS Works for Windows	$124
After Dark Startrek	$39
Carbon Copy Plus 6.1	$149
Corel SCSI Software	$79

Databases / Spreadsheets

DBASE IV 1.1	$469
FOXPRO 2.0	$490
QuattroPro/Lotus 1-2-3	$299 / 379
MS Excel for Win V4.0	$298

Desktop Publishing/CAD

MS Word 2.0 for windows	$298
Harvard Graphics for Win	$335
PageMaker for Win	$475
Word Perfect 5.1	$256
Corel Draw 3.0	$336
Adobe type manager	$65
MS Office for Windows V4.0	$479
Design CAD 3,1 3D	$218
AutoCAD Release 12	$3095

Operating Systems

SCO UNIX DEV sys3.2.4	$849
SCO UNIX GT m user 3.2.4	$849
DOS 3 / 4 / 5 / 6 w/sys	$36 /38/40/48
DOS 6..DR	$69
Windows 3.0 / 3.1 upg w/sys	$49
Windows 3.1 w/mse w/sys	$64

BUSINESS

DacEasy Network Accounting 4.3	$199
DacEasy Payroll 4.3	$99
ACCPAC BPI	**CALL**
ACCPAC PLUS	**CALL**

CRYSTAL SERVICE - ACCPAC SUPPLIMENTS

Jian BizPlan Builder	$89
Jian Employee Manual Builder	$89
Jian Living Trust Builder	$89

[Sales and Support on ACCPAC]

CD SOFTWARE
OVER 200 TITLES
(Call for price sheet by Fax)

NOTEBOOK DRIVES

80MB 2.5" IDE	$190
120MB 2.5" IDE	$276
1.2MB External Floppy Drive	$175

PARALLEL PORT HARD DRIVE

Parallel Port External Hard Drive - Best suited for Laptops & Notebooks

Fast SCSI Based Sub-System. Add Price for appropriate SCSI Hard Drive + Kit Price at................$295

REMOVABLE HDD

Syquest 44MB Dr	$279
w/ Ext Case, Cbls, Cart., Cont	$379
Syquest 88MB Dr	$334
Syquest 105MB Dr	$489
Bernoulli 44 Insider	$907
Bernoulli 90 Insider	$840

Cartridges see storage media

IDE: Upto 1GB removable kits	**$39**
SCSI: Upto 1GB RemKits	**$138**

ENGINEERING CAD/CAM

Monitors

Corner Stone Tech

DualPage 120I, 19" 1600x1280 120dpi	**$1795**
.....PC161I DualPage 120I Cont	**$739**
DualPage 150I 19" 2048x1536 150dpi	**$2190**
.....PC202I DualPage 150I Cont	**$1045**

Hitachi

CM1584MV 15"FST .28,1280NI, MPRII	$499
CM1785MV 17" FST,.28.1280NI,MPRII	$910
CM2085 20" 1280 Anti Glare	$1275
CM2087 20" 1280 72Hz Microp	$1675
CM2187 21" FST 1600x1280 Microp	$2145
ACCUVUE PS-21FST,.28.1600x1280,Micr	$2220

Toshiba

P17cu01 FST 1024..31automode.($649*)	**$679**
P21CR 21", .31, 1280NI, MPRII	**$1925**

Sony

CPD1304S 14", *MPRII*, 70Hz.....($530*)	**$579**
CPD 1430 14"	$599
CPD1604S 17"..Orig/OEM	**$995 / 885**
GDM2036S 20",.1280NI, MPRII	$1985

Sampo

Sampo 17" NI 1280x1068...31dp	**$675**
Sampo 20" NI 1280x1068...31dp	**$1029**

Nanao

F340iW 15",.28, 72HZ, MPRII, Micrp..($665*)	$689
F550iW 17" FST 1280NI,.28,75Hz NI	$1105
F760iW 21" FST 1280NI,.31	call
F550I 17",FST, 1280, .28, *MPRII*	$1085
T560I 17", Trin, 1280, .26, *MPRII*	$1659
T660I 20" Trin, 1280, 72Hz, MPRII, Micrp	$2439
F750i 21", .31, 1280, 72HZ, Micrp	$1999
6500 21" Gray Scale,1664x1120	$1175

Magnavox

20CM64 20", 1280NI, .31	$1345

NEC

3FGE 15", .28, 1024NI	$635
4FGE 15",.28, 1024NI ($689*)	$739
5FGE 17", .28, 1024NI ($1099)	$1139
6FG 21", .28, 1280NI	$2399

MAG

MX17F,17" .26, 1280NI, Microp	$1060
MX15F 15" .28, 1280NI, Micrp	$575

PHILIPS

1764DC 17" .26,FST,1280NI,Micrp,MPRII	$1050
1762DT 17",TRIN,.25,1280NI,Micrp,MPRII	$1099
2082DC 20",TRIN, .30,1280,72HZ	$2140
2182DC 21" .28,1600X1280,Micrp,MPRII	$2575

GRAPHIC ADAPTERS

(Also See Local Bus and Adapters Sections)

NUMBER NINE - #9GXI

L23 WIND/ACAD,T34020,1280,16C	$929
L25F,40MHZ,WIN/ ACAD,,1280,256C	$1195
L29 T34020,1024X768X16.7M COLOR	$1315

NUMBER NINE - #9 GXE

L11 S3928, 2MB VRAM	$539
L12 WITH 3MB VRAM	$685
HERCULES GRAPHITE	$289
MYLEX GXE020B Ti34020	$1045

DIAMOND COMPUTERS

Speedstar 24X	**$159**
STEALTH 1MB	**$189**

GENOA

7900 16m Color (24 bit color)	**$129**
7860 1MB Hi-Color	**$132**
8860 S3 Chip Hi-color	**$189**

The bold items are always in stock Sorry, we don't have all Monitors, Plotters, Digitizers, & Scanners on Display. Please treat these as Catalog orders.

ASA COMPUTERS

PLOTTERS DIGITIZERS SCANNERS

PLOTTERS

HOUSTON INSTRUMENTS

Im Maker 1117,A/B,8 Pen, HPGL	$632
DMP-161 A-D, 8 Pen, HP-GL/2	$2625
DMP-162 A-E, 8 Pen, HP-GL/2	$3439
DMP-162R A-E, 8 Pen, Roll Med	$3975
V50(INKJET A-C SIZE).....NEW	$1410

DIGITIZERS

SUMMAGRAPHICS

III 12x12 w/16btn or 4bt & Pen	$309
III 12x18 w/16btn or 4bt & Pen	$549

KURTA

XLP 12x12 w/4btn & Pen	$249
XLP 12x18 w/16btn or 4btn, Pen	$529
IS/ONE 12x12 4btn / 12btn / Pen	$329
IS/ONE 12x17 4btn / 12btn / Pen	$530
(IS/ONE also available w/Cordless 4btn or Pen)	
XLC 24 X 36	$1260
XLC 18 X 24	$1070

CALCOMP

CALCOMP 12 X 12	$279
CALCOMP 12 X 18	$629
CALCOMP 18 X 24	$1275
CALCOMP 6 X 9 P Series	$439
CALCOMP 12 X 12 P Series	$485

SCANNERS

LOGITECH (HAND-HELD)

SCANMAN-COLOR	$505
SCANMAN 256 / CatchWord PRO	$220/260
SCANMAN 32 / CatchWord PRO	$130/155

MICROTEK

SCANMAKER II 1200dpi, MAX	$851
SCANMAKER IIXE 1200dpi, MAX	$1140
SCANMAKER 1850 1850 dpi MAX	$1360
MS-II OCR SCANNER	$669
ADF-600 Automatic Sheet Feeder	$480
SCANMAKER 45t for Transparencies	NEW

RELISYS

(Cold Tube Design-Long Life,4 Times Microtek e.tc)

COLDSCAN 800 dpi..w/PPLE	$1035
COLDSCAN 600 dpi..w/PPLE	$865
COLDSCAN 600 dpi Grayscale..w/PPLE	$665
.................Calera WordSacn w/Scanner	$64
50 Page Automatic Document Feeder	$394

ARTISCAN

6000C 600dp, with colorshop software	$770
8000C 800dpi, with color shop software	$1040
1200C 1200 dpi,with color shop software	$1490
..Picture Pub LE or WordScan OCR	$64
..Slide Scan Kit for 6000C/8000C	$550
..Slide Scan Kit for 1200c	$650

TERMS

(COD, FOB Santa Clara)

Besides Purchase Orders (on approval of credit), Credit Cards, Cheques, we accept Cash too.

*(Prices marked with a * are on strictly Cash Basis Only)*

2% off on items that are not in stock & you are willing to wait for them. 1% more off if item is not in by promised time or shipped freight free.

Warranty – Parts – one year. Labor – 3 years on systems assembly only. Not responsible for typos. Prices are subject to change.

We Take Pride In Customer Satisfaction

International Orders via Fax
408-988-0359 24 hours. [VISA/MC/Wire transfer]

NETWORKING

ADAPTERS / KITS

NOVELL ORIGINAL

NE2000 16bit ThinThick	$141

ADVANCED LAN NETWORK

NE2000 Comp 16bit Thin/Thick	$64
.........5 Pack	$295
NE1000 Comp 8bit Thin/Thick	$59
Arcnet 8/16 bit	$59/69

WESTERN DIGITAL[SMC]

16 bit Ethernet Thin/Thick..bulk	$139

3COM

3C503 16 bit Coax/10BaseT	$162/174
3C507 16 bit Coax/10BaseT	$274/294
3C579 32 bit EISA Coax/10BaseT	$253
D-LINK 16bit 10BaseT 1/6pk	$74/429
CeLAN 16bit 10BaseT 1/6pk	$69/399

ARTISOFT

AE-2/3 Lantastic Kit	$445/525
AE-2/3 Lant Kit for Win	$499/575
AE-2/3 16 bitAdapter	$195/231
Z-2 Lite Kit 2 Stations	$94

TOKEN - RING ADAPTERS

K1604 "TROPIC" Chip 16/4 mbps	**$399**
RaCone 16/4 8 bit Type 3	**$259**

POCKET LAN ADAPTERS

CeLAN/D-Link 10BaseT or Coax	**$159/189**

HUBS

CeLAN 8 Port 10BaseT/Coax	$255
CeLAN 16 Port 10BaseT/Coax/MUI	$495
D-LINK 12 Port 10BaseT	$495
D-LINK DE-1500 w/ SNMP	$875
K1032 32 Port w/SNMP	$2545

INTELLIPORTS - COMPUTONE

Advantage 8 ATV8DB25	$477
Intelliport AT8DB25	$625
Intelliport AT16DB25	$999

NOVELL NETWARE

Ver 2.2 5/10 User	$455/1050
Ver3.11 5/10/20/50 User	$570/1259/1710/2520
Ver3.11 100/250 User	$3465/6185
NEW RELEASE VERSION 4.0	
Ver4.0 5/10 User	**$884/2010**
Ver4.0 25/50 User	**$2999/3999**
Ver4.0 100/250 User	**$5599/9999**
Ver4.0 500/1000 Us	**$16400/29999**
	upgrades available
NOVELL-LITE	$69

WINDOWS FOR WORKGROUP

..ADD-ON STARTER KIT	375
..ADD-ON USER KIT	$189
..ONLY SOFTWARE	$68

NETWORK HARDWARE

ETHERNET RG58 CABLES

Readymade w/Connectors 10'/25'/50'	$4/8/12
Bulk 1000' SPOOL	$89
Terminators / All Conn	$1.50

UPS's

AMERICAN POWER

APC-BK250, 7min, 386SX, WS	$101
APC-BK400, 10min, 286, 386 WS	$163
APC-BK450, 10min, 386, 486 FS	$195
APC-BK600, 15min, 386, 486 FS	$265
APC-BK900, 15min Multiple FSs	$379
APC-BK1250, 15min Multiple FS	$506
Power Doctor	$70
Call UPS	$99
SMART-UPS (ON-LINE/AUTO BACKUP)	
APC-400, 10min, 286, 386 FS / WS	$304
APC-600LS, 15min, 386, 486 FS / WS	$394
APC-900, 15min, CAD/CAM WS/FS	$569
APC-1250, 15min, Multiple FSs	$747
APC-2000, 20 min, Mini Computers	$1170

Note: International version is also available........

SERENA 5.25" 300VA UPS mounts inside PC

INTERFACE-KITS /SMART MONITORING

PowerChute SCO Xenix	$84
PowerChute Plus for Unix / Xenix	$115
PowerChute Plus for Novell	$72
UPS Monitoring Board - Novell	$69

MULTI MEDIA

Mitsumi Kit 350msec	**$189**
SONY CD-ROM Int Kit.installed	$125
NEC CDR-84/7280ms,,.300KB/sec/E	$554/618
TOSHIBA txm3401B/E, int/ext	440/ 535
...200ms access , 330 kb/sec............	
Texel DM 3024/5024 265ms Access........300 KB/sec Int/Ext	$365 / 460
..kit for pro audio spectrum 16	$25
Mitsumi....360ms	$205

CD-ROMs

7 Pak..[Catalog,Atlas,MotherGoose,Mammal,Lang,.....................MS Bookself,Ency]	$54

Over 200 titles in stock (call for price sheet)

CD RENTALS (for 1 week).....$5.00

Sound Boards / MPC Kits

Hyena Sound Blaster Comp. Sound Card	**$49**

MEDIA VISION

Thunder Lt, 24 bit Grph,8 bit Snd	$229
Pro Audio Spectrum 16....ORG/OEM	$164/145
Fusion CD16 Int/Ext	$505/515
Multimedia Upg Kit Pro16..Int/Ext	$899999
Multi-Media Video Adapter	$834
Video Capture Board	$310

CREATIVE LABS

Discovery 8/16bit	$399/459
Endutainment 8/16bit	$459/522
Video Blaster	$329
Software Dev. Kit	$99
SoundBlaster 16ASP...[complt version]	**$209**
Speakers Labtec cs150..Shielded	$18

TURTLE BEACH

Prof Sound Card	$509
Prof Multimedia Kit	$1299
Sound Editing Software	$98

COMPUTER VIDEO

AITECH

Pro Color 16 bit32k	$525
Pro VGATV/Plus w/ soft	$439 / 619
Pro PC Video Full Motion	$449

LOGITECH

Fotoman Digital Camera for PC	$475

COMMUNICATIONS

MODEMS / FAXES

2400 Modem/Fax Int. w/MNP5 sw[sendfax]	$32
96/24 FAX/Mod DOS/Windows Internal	$57
.......BitFax OCR for Windows	$49

ADTECH - Made in USA

96/24 Fax/Modem MNP5, V.42bis hardware	**$79**
14.4/14.4 Modem/Fax V.32bis & V.42bis	**$150**
Pocket/Notebook Fax/Modem 96/48/24	$79

THE COMPLETE PC

The Complete Communicator	$299
The Complete Communicator Gold	$389

AT&T Paradyne

DataPort 14.4 Fax V.32bis External	$389
DataPort 14.4 Fax V.32bis Internal	$359

US ROBOTICS

9600Sprtstr Modm V.32 V.42bis Int/Ext	$150/156
9600SprtstrModm/faxV.32 V.42bis Int/Ex	$169/175
14,4 Sportster Modem V.32bis V.42bis Int	$169
14,4 Sportster Modem V.32bis V.42bis Ext	$180
14,4 Sportster Mod/Fax V.32bis V.42bis Int	$180
14,4 Sportster Mod/Fax V.32bis V.42bis Ext	**$204**
14,4 sprstr **Mac** Mod/fax	$224
14,400 CHST/PC-N Int/Ext V.42	$504/524
14,400 HST Courier DualV.32bis	$769
Modem Sharing Kit V.32bis	$620
Dual Modem Sharing Kit	$995

INTEL

Satisfaction 100+Fax Int	$105
Satisfaction 200+Fax Int	$295
Satisfaction 400+Fax Int	$389
Satisfaction 400+Fax Ext	$429

NATIONAL SEMI-CONDUCTOR

TYIN 2000 Fax, Modem, Answering M/C, ...Audio PlayBack...	$175
ZY-XEL U-1496E (USA) 16.8,14.4..................FAX/Voice Win	$319

PRINTERS

Star Micronix NX1001 9 Pin.120/220V	$134/144
IGOR 80 9Pin **220V**	$139
IGOR 132 9Pin Wide **220V** (Cyri, Arab..) min 100	$139

CANON

BJ 10EX,360DPI,37k,6fnts,142cps	$249
BJ 200,360dpi,49k,7fnts,248cps,4ppm	$340

OKIDATA

OL400, 4ppm, 300dpi ($559*)	$575
OL810, 8ppm, 300dpi	$965
OL830 Plus, 8ppm w/ 2MB post script	$1189
LASER	
OKI ML184T dot matrix, rugged industrial	$245
OKI ML320 320cps dot matrix	$315
OKI ML590 24 pin..auto form sensing	$464

PANASONIC

KX-P2123, N-Carr, 240cps, 360dpi, 10fnts	$255
KX-P2124, N-Carr, 320cps, 360dpi, 12fnts	$335
KX-P1624, W-Carr, 192cps, 360dpi, 14fnts	$365
LASER	
KX-P4410,5ppm,300dpi,28fnts,512k	$629
KX-P4410,5ppm,300dpi,28fnts,512k	$629

Citizen

200GX 9 pin...dual feeder, park	$159
GSX230 24 pin.8 fonts, 270cps	$255
color option for Citizen 80 col printers	$42
GSX240 24 pin wide.....300cps, 13 fonts	$305
Notebook Pr. CTZPN48 w/bat	$290

Laser Extension Memory

HP IIP, IIIP	2/4MB	$88/147
HP II, IID	2/4MB	$104/163
HP IIISi	1/4MB	$59/148
HP IV	**4/8MB**	**$149/289**
Pan 441/2/30, 4450i	2/4MB	$118/178
Pan 4450	1MB	$113
Pan 4455	2MB	$134
Oki400	2MB	$99
Oki 800, 820	2/4MB	$103/163
Oki 810	1/2MB	$84/149
Epson 6000	2/4MB	$114/169
Epson 4000/8000	1/4MB	$114/179

PRINTER SHARING

AUTO SWITCHES

2 Computers to 1 printer Electronics	$24
4 Computers to 1 printer Electronics	$40
2 Computers to 1 Printer Bi-directional	$45
4 Computers to 1 Printer Bi-directional	$61
2/4 Auto-switches Uni-directional	$25 / 39

PRINTER NETWORKING

PrinterLink ParLine Extender Centr(w/50' Cab)	$69
PrinterLink ParLine Extender DB-25(w/50' Cab)	$69
ModularLink Printer Net Transmitter DB-25(w/25'C)	$40
ModularLink Printer Network Receiver Centr0	$48
ModularLink Printer Network Starter Kit	$106
PrinterNET Printer Net Transmitter DB-25(w/25'C)	$69
PrinterNET Printer Net Transmitter Centronics(w/25'C)	$69
PrinterNET Printer Net Transmitter Centronics(w/25'C)	$163

Memories/Math-Cos

FAST MATH-COs

by CYRIX / INTEL / IIT

2C87-10/XL	$32/$49
3C87SX-16/20/25	$65
3C87SX-33	$69
3C87DX-25/33	$69
3C87DX-40	$75

SIMMS/SIPPS

256x9-80/70	$Call
1Mx9-80/70	$Call
1Mx9-60	$Call
4Mx9-80/70	$Call
4Mx9-60	$Call
DRAMs, and other SIMMs	available

ESIMMs - SUN / PC / LaserJet

1M x 36 - 80 / 70	$Call
2M x 36 - 80 / 70	$Call
4M x 36 - 80 / 70	$Call

MAIN BRANCH

ASA Computers
2354 Calle Del Mundo
Santa Clara, CA 95054
Tel: [408] 496-6853
Fax: [408] 988-0359

ASA Affiliated Stores

North Bay
Sigma Industries
904 S. Main, Lakeport
T: [707]263-5345 F: [707]263-0948

Daly City
Quadro Systems
2388 Junipero Serra Blvd
T: [415] 301-1800 F: [415] 755-0682

Pleasant Hill
STI Computers
609 Gregory LN #110 [sandalwdctr]
T: [510] 256-9938 F: [510] 256-9983

San Francisco (City)
Non Stocking Pick-up Centre - (order for pickup next day)
Computer Systems 2000
350 Sansome St. # 1030
T: [415] 421-2001 F: [415] 399-06648

Hours
Differ store to store
Mon. to Fri 9 AM to 6:30 PM
Saturday 10AM to 4PM.

Stores Outside Bay Area

Indianapolis, IN
The Computer Centre
Tel: [317] 291-9211
Fax: [317] 879-1410

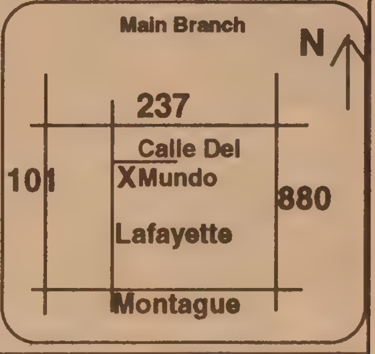
Bangor, ME
Actec Enterprises
Tel/Fax: [207] 990-3552

Phoenix, AZ
AIKA Systems
Tel: [602] 443-3618

Minnetonka, MN
Mehr Int'l
Tel/Fax: [612] 935-8204

Resellers call for reseller price list. **Dealers** call [408] 988-2973 for our dealership program.

All branches listed here are independently owned and operated, and are responsible for their own liabilities...



ONE YEAR
WARRANTY

AMT INTERNATIONAL

LOWEST PRICES
SAME DAY
SHIPPING

2393 QUME DRIVE, SAN JOSE, CA 95131
(408) 942-9695 FAX (408) 942-5509, 432-0677

386DX-40 AMD $880
486DLC-33 Cyrix $895
486SX-25 Intel $945

- 128K Cache
- AMI BIOS
- 4 MB RAM-70ns
- 1.44 MB Teac Floppy Drive
- Conner 80 MB IDE Hard Drive
- IDE I/O 2FD/2HD, 2S/1P/1G Ports
- 512K SVGA Card
- 14" SVGA Monitor .28dp
- Chicony Keyboard 101 Key
- Mini/Desktop Case w/230W Power Supply

486DX-33 Intel $1160
486DX-50 Intel $1289
486DX2-66 Intel$1369

- 128K Cache
- AMI BIOS
- 4 MB RAM-70ns
- 1.2 MB Teac Floppy Drive
- 1.44 MB Teac Floppy Drive
- 120 MB IDE Hard Drive
- IDE I/O 2FD/2HD, 2S/1P/1G Ports
- 512K SVGA Card
- 14" SVGA Monitor .28dp
- Chicony Keyboard 101 Key
- Mini/Desktop Case w/230W Power Supply

486DX-33 Intel $1369
486DX-50 Intel $1539
486DX2-66 Intel $1575

- VESA LOCAL BUS Motherboard w/128K Cache, 2 VESA Slots
- AMI BIOS
- 4 MB RAM-70ns
- 1.2 MB Teac Floppy Drive
- 1.44 MB Teac Floppy Drive
- 213 MB IDE Hard Drive
- IDE I/O 2FD/2HD, 2S/1P/1G Ports
- VESA Local Bus Cirrus Logic Video Card w/1 MB
- 14" SVGA Monitor .28dp
- Maxi Keyboard 101 Key
- Mini/Desktop Case w/230W Power Supply

486DX-33 Intel $1569
486DX-50 Intel $1720
486DX2-66 Intel $1820

- ORCHID Motherboard w/256K Cache, 2 VESA Slots
- AMI BIOS
- 4 MB RAM-70ns
- 1.2 MB Teac Floppy Drive
- 1.44 MB Teac Floppy Drive
- Maxtor 213 MB IDE Hard Drive
- VESA Local Bus IDE, Orchid I/O Card
- VESA Local Bus Fahrenheit Video Card w/1 MB-Orchid/Diamond
- 14" SVGA Monitor .28dp
- Maxi Keyboard 101 Key
- Mini/Desktop Case w/230W Power Supply

MOTHERBOARDS

486-50 (EISA) 33/50 MHz	CALL
ISA	
486-50 Local Bus w/256K Cache w/CPU	$980
486DX-33/50/66, 128K Cache w/o CPU	105
486DX-33/50/66, 256K Cache w/o CPU	150
386DX-33/486DX AMD Upgradable w/CPU	230
386DX-40, 128K Cache w/o CPU	98
w/CPU	179
ALL-IN-ONE	
386SX-33 512K SVGA, IDE I/O	165
486SX-33 0K, 512K SVGA, IDE I/O	170
386SX-33 w/CPU	120
386SX-25 w/CPU	99
VESA LOCAL BUS	
ORCHID Motherboard, 256K Cache w/o CPU	$205
ECS Motherboard, 128K Cache w/o CPU	145
HOT 128K Cache w/o CPU	115

VIDEO CARDS

VESA Video Cards	
Orchid Fahrenheit, 1 MB, S3	$170
Diamond Stealth, 1 MB, S3	165
Diamond Speedstar 1 MB	135
ATI Ultra Pro Graphics Pro 2 MB	365
Cirrus Logic, 1 MB	105
Orchid Viper	340
ISA Video Cards	
Orchid Fahrenheit, S3	$180
Diamond Star 24X	170
Trident 1 MB	54
Tseng Lab 1 MB	85
Trident 512K	40
Accumos 256K	29

MONITORS

Mono VGA 14"	119
14" SVGA 0.28	240
14" SVGA VESA 0.28	320
Non-Int SVGA 0.28	265
Sony 1304	579
ViewSonic 4/6/5E/7	295/399/395/1099
NEC 3FG/4FG/5FG	659/749/1359
Samsung 14" VGA (.31)	260
Samsung 14" SVGA (.28)	245
Samsung 15" SVGA (.28)	475
Samsung 17" SVGA (.31)	789
OTHERS	CALL

HARD DRIVES

CONNER	44 MB IDE	$138
	89 MB IDE	179
	130 MB IDE	215
	170 MB IDE	269
	210 MB IDE	315
	340 MB IDE	535
	520 MB IDE	789
MAXTOR	80 MB IDE	185
	130 MB IDE	215
	213 MB IDE	299
	340 MB IDE	539
	340 MB SCSI	545
	660 MB	CALL
QUANTUM	52 MB IDE	165
	120 MB IDE	229
	240 MB IDE	359
SEAGATE	40 MB IDE	149
	105 MB IDE	205
	130 MB IDE	215
	200 MB IDE	345
CDC	91.5 MB SCSI	199
FUJITSU	540 MB IDE	CALL

FLOPPY DRIVES

1.2 MB Teac 5.25"	$53
1.44 MB Teac 3.5"	47
1.2 MB Samsung 5.25"	49
1.44 Samsung 3.5"	45

TAPE BACK-UPS

120 MB Colorado	$146
250 MB Colorado	195
500 MB Portable	CALL

NETWORK CARDS

Ethernet 8-Bit.	$89
Ethernet 16-Bit	99
14 Port 10 BaseT Hub	539
Arcnet 8-Bit	49
Arcnet 16-Bit	59

Prices Subject To Change w/o Notice
Not Responsible For Typographical Errors

KEYBOARDS

NORTH GATE/OMNI.	CALL
Keytronics 101	40
Maxiswitch 101	32
Chicony 101	28
Focus 5001 w/Calculator	65
Mitsumi 101 Key	30

MISCELLANEOUS

MS DOS 6	$44
Windows 3.1	45
6'/10' Printer Cable	5/9
Power Supply 150/220W	39/49
Monitor/Keyboard Ext Cable 10'	7
Printer Switch (AB/ABCD)	10/20
Sound Blaster Pro	189
Sound Blaster	105
Sony CD-ROM	CALL
CPU Fan	14

MICE

Logitech Serial.	$65
Logitech Scanman Model 32	149
Logitech Model 256 w/OCR	365
Microsoft Mouse	89
Logitech w/Windows 3.1	75
Serial Mouse w/Pad	14

PRINTERS

HP LaserJet IV	$1389
Epson, Panasonic, Okidata, Citizen, & Others	CALL

ADD-ON CARDS

AT IDE I/O (2SPG, HD/FDC)	$20
AT I/O (2SP, 1PP)	13
Bustek EISA SCSI	345
Apatec 1542 SCSI	255
DTC IDE I/O	90
Winbound IDE I/O	57
IDE w/Cache	195
IDE 4FD/2HD	32
VESA IDE Controller	80
Orchid IDE & I/O VESA	70

COMPUTER CASES

Full Tower Case w/250W PS	$95
Mid Tower Case w/230W PS	79
Mini Tower Case w/200W PS.	60
Desk Top Case w/230W PS	99
Baby AT Case w/200W PS	60
Slim DeskTop Case w/200W PS	85

ONE YEAR WARRANTY

VISA

AMT INTERNATIONAL

2393 QUME DRIVE, SAN JOSE, CA 95131
(408) 942-9695 FAX (408) 942-5509

LOWEST PRICES SAME DAY SHIPPING

QUANTITY PRICING FOR DEALERS & VARS, PLEASE CALL!!

MEMORY BOARDS FROM ACCULOGIC

•RAMpAT 16 BIT Memory Up to 8 MB 80286, 80386SX, 80386 **$85**

•RAMpAT PLUS Memory Up to 8 MB For IBM PC, PC XT, PC/AT, PS/2 **$125**

•SIMMply-RAM FOR PS/2 16 BIT Memory Up to 8 MB For PS/2-50, 50Z, 60, 70, 80 **$149**

•SIMMply-RAM Memory Up To 32 MB For PS/2-70,80,90 **$159**

FAX/MODEMS

2400 bps MODEM (INT)	$40
9624 bps FAX/MODEM (INT)	55
9600 bps MODEM (INT)	239
9624 bps FAX MODEM	139
9624 bps POCKET MODEM	139
94/144 V.32/V.42 BPS	199

MEMORY UPGRADES

SIMMS

IBM TYPE

1x9-60 3 Chip	$37
1x9-70 3 Chip	35
1x9-80 3 Chip	34
1x9-80/70/60 9 chip	34/35/37
1x9-80/70 SIPPS chip	35/36
1x9-100 9 Chip	29
4x9-60	153
4x9-70	137
4x9-80	130
16x9-70	625

MAC TYPE

1x8-100 8 Chip	$26
1x8-80 8 Chip	29
1x8-70 8 Chip	30
1x8-80/70 8 Chip	32/33
2x8-80/70	63/66
4x8-80/70	120/129
16x8-80/70	540/559
Mac IIfx 4/16 MB Kit	135/490
256K VRAM	35
512K VRAM	65
16/32/64/128MB Kits for Quadra 700/900 & Mac IIfx, ci	CALL
NEW 72 PIN SIMM for MAC LCII & CENTRIS	CALL

72 PIN SIMMS (36 BIT)

256Kx36-10/80/70	$34/38/45
512Kx36-80	69
512Kx36-70	79
1x36-80/70	139/149
1x36-60	179
2x36-80/70/60	255/275/CALL
4x36-80/70	560
8x36-70 NEW	CALL

32 BIT SIMMS ALSO AVAILABLE

DRAMS

DRAMS

256x1-80	$1.75
256x1-100	1.45
256x1-120	1.20
256x4-70/80	4.25
64x4-80/100	1.50
1x4-80 DIPP	17
1MBx1-70	3.99
1MBx1-80	3.89
SOJ	CALL

ZIPPS

64x4-10/12 Page, 18pin	$4.50
256x4-80/70 Page, 20pin	6
256x4 Video Page 28pin	10
256x4 Video 28pin	10
1x4-80/70 Page 20pin	17
1x4-80/70 page 20pin	CALL

CACHE MEMORY

32Kx8-20	$4.95
32Kx8-15	5.00
64x4-20	6.00
64x4-15	9.50
8Kx8-20	2.75
8Kx8-15	3.00
16Kx4-20	2.75
16Kx4-15	3.00
64x1-20	5.75
64x1-15	7.50
128x8-100	CALL
128x8-25	CALL

MATH CO's

INTEL/CYRIX/ULSI

287-10 Intel	$20
8087-1/2/3	79/49/29
287XL Intel	55
387SL Intel	88
387SX-16/20	45/64
387SX-25 Cyrix	69
387SX-33 ULSI	79
387DX-20 Intel	54
387DX-25 Intel	67
387DX-33 Intel	77
387DX-40 Cyrix/IIT	79
4167-25/33 Weitek	325/565

CALL FOR PRICING ON IIT, ULSI & WEITEK

LASER PRINTER MEMORY

Price includes Memory, Board & Installation Instructions

IBM LASER

4019/4019E 1/2/3.5 MB	$89/119/179
4029 (All Model) 4 MB	169

EPSON LASER

6000-2/4MB	$114/175
7000-2/3 MB	125/179
Action LaserII-2/3/4/5 MB	108/139/169/199

HP LASER

HPII/IID 2/4 MB Board	$105/179
HP 4/4M 4/8MB	149/289
HP IIP,IIP+,III,IIID,IIIP 1/2/3/4	60/95/134/179
IIsi 4/8 MB	138/299
LaserJet Fax 1 MB	82
DeskJet 500/500c 550C 256K	59
Design Jet Plotter 4 MB	144

PANASONIC LASER

KXP4410/KXP4430 1/2/3/4 MB	$89/115/149/184
KXP4420/4450/4451 1/2/3/4 MB	79/108/139/179
KXP4450 1 MB	111
KXP4455 2 MB	129

OKI LASER

OL400 1/2 MB Board	$84/106
OL800/820 2/4 MB Board	107/179
OL810 2/3/4 MB Board	145/179/219

QMS LASER

PS 410 2/3/4 MB	$119/165/189
PS 860, 1700 1/4/8 MB	53/133/166
PS 815, 825, 815MR, 2/4/6	168/232/295

SHARP LASER

9500PS 1 MB	$55
JX-9500/9700 1/1.5/2.5/4	105/135/188/344

OTHERS

Apple Laserwriter II/IINT/IINTX 4 MB	$169
Brother HL-4 2/3/4 MB	119/165/189
Brother HL-8E V 1/2 MB	99/139
Compaq Pagemarq 15 & 20 1/4/8	49/139/266
Fujitsu RX7100/7200 1/2 MB	185/245
Kyocera F800, F800Am F800T 2/4	95/137
NEC Silentwriter 90/290	99/124
NEC Silentwriter 95 2 MB	104
TI Microlaser 1 MB	55

DELL MEMORY

Model		P/N	
433P,33P,325P,33D,325D			
	1 MB	310-2505	$44
	4 MB	310-2507	155
433TE, 425TE & Powerline Workstation			
	2 MB	310-2466	109
	4 MB	310-2467	175
	8 MB	310-2468	319
	16 MB	310-2469	649
Power Desktop 486D, D/33, D/25, D/20, D/66			
	1 MB	310-2505	$44
	4 MB	310-2507	155
	16 MB	310-2625	595
OTHER MODELS			CALL

CPU CHIPS

Cyrix 486	$CALL
386, 486 All Speeds & 486DX2-50/66	CALL
Heatsink w/Fan for 486's	$25

TEAC FLOPPY DRIVES

1.44 MB	$55
1.2 MB	$57
Dual Floppy 1.2/1.44	145
Bracket Kit	6.50

COMPAQ MEMORY

Model		P/N	
LTE 286	2 MB	117081-002	$115
	4 MB	117081-003	175
SLT 286	4 MB	110237-001	299
LTE 386S/20	2 MB	12125-001	119
	4 MB	121125-002	195
Contura Lite 20/25			
	2 MB	129769-001	105
	4 MB	129769-002	155
	8 MB	129769-003	295
Portable 386	1 MB	107651-001	109
	4 MB	107653-001	299
Portable III	2 MB	10-7332-001	79
	EBD	167811-001	199
SLT 386	2 MB	118304-001	119
	4 MB	118305-001	185
Deskpro 386S (E. Board)			
	4 MB	11364-001	239
	4 MB	112534-001	169
Deskpro 386/33L, 486/33L, 50/25			
	2 MB	115144-001	99
	8 MB	116561-001	335
	32 MB	116568-001	1275
	6 Socket E Board		CALL
Deskpro 386/20e, 25e (E. Board)			
	4 MB	113645-001	99
	8 MB	116561-001	335
	32 MB	116568-001	1275
Deskpro 386/20e, 25e (E. Board)			
	4 MB	113645-001	239
Deskpro 386/20,20e,25e			
	4 MB	113132-001	169
Deskpro 286N, 386N, 386SX/20, 386/25M, 486/33M, 486S/25M, 486S/16M			
	2 MB	118689-001	95
	4 MB	118690-001	145
	8 MB	128877-001	294
Deskpro 486/33L, 486/50L, 386/33L			CALL
Prolinea 3/255 & 3/252S			
	2 MB	141738-001	105
	8 MB	141742-001	375
Prolinea 4/33	2 MB	141682-001	95
	4 MB	141684-001	159
	8 MB	141685-001	299
Other Models			CALL

TOSHIBA MEMORY

T8500, T5200	2 MB	105/335
T5100, T3100, T1600	2 MB	84
T3100SX	2/4 MB	105/157
T3200SX, SXC	2/4 MB	99/157
T4400SX, SXC, T6400	2/4 MB	135/219
	8/16 MB	157/249
T3300SL	1/2 MB	99/129
T3100	2 MB	109
T2200SX, SXE, T1000LE	2/4/8MB	105/157/279
T1800 Satelite	2/4/8 MB	109/159/279

NEC MEMORY

Prospeed 286, 386SX/16	1/2/4 MB	$99/165/229
Prospeed 386	2/4 MB	165/419
Prospeed SX/20	1/4 MB	105/229
Powermate 386/25S	2/8MB	129/359
Powermate 486/25E, 486/33I	2/8 MB	85/345
Powermate Express Series	1/4/16 MB	69/169/595
Other Models		CALL

NOTEBOOK/LAPTOP MEMORY

LIFETIME WARRANTY

Altima LSX	2/4 MB	165/249
Avanti	2/4 MB	74/145
AST Premium Exec	1/4 MB	75/134
AST Power Exec 3/25	4/8/16 MB	CALL
Compaq Contura Lite 20/25	2/4/8 MB	105/155/295
Chaplet Notebook	2/4 MB	155/249
Chicony 386SX	4 MB	189
Chicony 386SL/25	2/4 MB	129/229
DECPC 320P	2/4/6 MB	195/269/389
DELL 320N &212N	1/2 MB	85/125
DELL 320N, NC	2 MB	125
DELL 325N, NC	2 MB	179
DELL NL25, NL20	2 MB	179
Epson NBS3	1/4 MB	98/225
Everex Tempo LX	2 MB	88
HP 95LX	1/2 MB	159/279
IBM L40SX, N33/SX	2/4/8 MB	99/155/299
IBM N51SX & SLC	1/4/8 MB	99/155/299
IBM PS/2 N45 Sl	2 MB	179
MAC PB 160, 180	6/10 MB	249/425
MAC PB 140, 170	2/4/6 MB	89/175/229
MAC PB 100	2/4/6 MB	89/179/239
Magnavox Metalis 386SX	4 MB	199
NEC Ultralite 286F	1/4 MB	99/199
Packard Bell 386SX	1/4 MB	99/229
Panasonic CF 170/270/370	1/2 MB	65/99
Sharp PC 8501	2 MB	105
Sharp 678/6881	2 MB	129
Sampo NB SX/26, SX/25	2/4 MB	145/225
TI Travelmate 2000	1 MB	77
TI Travelmate 3000	2 MB	69
TI Travelmate 4000	4 MB	219
Zenith Turbosport 386 E	1/4 MB	95/299
Zenith Supersport SX	2 MB	145
Zenith Mastersport	2 MB	99

IBM PS/2 & PS/1 MEMORY

PS/1 286/386SX	2/4 MB	$95/149
PS/1 Consultant Essential/Expert	1/2/4/8 MB	45/79/155/299
386 Valuepoint	2/4/8 MB	89/159/305
486 Valuepoint	4/16 MB	169/595
PS/2 30-286	2 MB	89
50Z, 55SX, 65SX, 70	2/4 MB	79/145
40SX, 35SX,35SL	2/4 MB	79/149
70A21, A61, 121	2 MB	109
80-11, 121, 311	4 MB	210
95,90,P75, PS/1 Pro	2/4/8 MB	110/149/305
16 Bit Exp Bd For 50, 50Z, 60, 65SX	0K	144
32 Bit Exp Board for all 70 & 80 models	0K	164
RISC 6000	16/32/64 MB	745/1490/2890
Other Models		CALL

AST MEMORY

Bravo 3/33(LC) 325S	2/8 MB	$84/299
Bravo 486/25 & 4/33	2/8 MB	109/309
Bravo 486LC	4/8/16 MB	145/295/565
Cupid-32 Board	0K	219
Premium 386C	4 MB	145
Premium SE 450	4 MB	145
Premium 386/25, SX,33,486/25	1 MB	40
Premium II 386, 486	1/4 MB	37/145
Executive Notebook	4 MB	134
Other Models		CALL

SUN MEMORY

SPARC SLC	4 MB	$145
3/60, 80, 4/40, 60, 65	4/16 MB	139/495
SPARC 1 &1+, 1Pc	4/16 MB	140/499
SPARC 10	16/64 MB	645/CALL
SUN Classic	16 MB	625
SPARC Server 630np	64 MB	2285
SUN IPX, ELC	4/16 MB	175/555
SPARC II	16 MB	560
Other Models		CALL

TERMS AND CONDITIONS

1. AMT Will Meet Or Beat Any Advertised Price!
2. Full Five Year Warranty With All AMT Upgrades!
3. Gov't, University And Qualified Firms PO'S Welcome
4. U.S. and International Shipping VIA UPS, DHL and Federal Express
5. All Sales Must Include Sales Tax
6. All Sales Must Be C.O.D. Cashier/Certified Checks
7. There Is A 15% restocking Charge For All Refused Merchandise
8. Prices Subject To Change W/O Notice, Not Responsible For Typo's

HOURS: MON-FRI 8am-6pm, SATURDAY 9am-3pm

THE BEST PRICE IN TOWN!

$745

486DX2-66MHz w/64K Cache

- 1MB Expandable to 32MB on Board
- 8K Internal Cache
- 64K External Cache Exp. to 256K
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

$665

486-50MHz w/64K Cache

Intel 80486-50MHz CPU

- 1MB Expandable to 32MB on Board
- 8K Internal Cache
- 64K External Cache Exp. to 256K
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

486-33MHz w/64K Cache

w/Intel 80486-33MHz CPU	$525
w/Cyrix CPU, Math Chip	$390

- 1MB Expandable to 32MB on Board
- 8K Internal Cache
- 64K External Cache Exp. to 256K
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

Optional for 486 Systems

VESA Local Bus	Add $25
EISA	Add $150
Orchid VESA Local Bus Motherboard	Add $165
TS4000 VLB w1M	Add $100
Orchid Fahrenheit VLB w/1M	Add $175
IDE 32-Bit	Add $50

OPTIONAL :

w/system purchase

12" Mono Monitor & Card	$65
Super VGA Monitor (1024x768 0.39) w/SVGA Card 512K	$240
Super VGA Monitor (1024x768 0.28) w/SVGA Card 512K	$280
Non-Interlaced SVGA Monitor (1024x768 0.28) w/1M Card	$330

$250

386SX-33MHz

- 1MB Expandable to 8MB on Board
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

$245

386SX-25MHz

- Landmark= 36
- 1MB Expandable to 8MB on Board
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

NOVELL®

Sales...
Custom Design Service...
Installation and Maintenance...
Extended Software Support...

Available through
STEPFORD
(415) 553-3837

$235

286-20MHz 0 Wait

- Landmark=21
- 512K Expandable to 4MB
- Real Time Clock
- 8 Expansion Slots
- 80287 Socket
- 1.2 or 1.44MB Floppy Drive
- 1:1 HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

$220

286-12MHz 0 Wait

- 6/12MHz 0 Wait
- 512K Expandable to 4MB
- C & T Chip Set
- EMS 4.0 Built-in
- Shadow RAM
- Landmark=16
- 1:1 HD/FD Controller
- Real Time Clock
- 1.2 or 1.44MB Floppy Drive
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

BELMONT SYSTEMS INC.

(Belmont Computer Products)
1555 Industrial Road, San Carlos CA 94070

(415) 598-9058
FAX (415) 598-0186
Store Hours: M-F 9-6
Sat. 10-3

PRICE IS NOT ALL WE OFFER:

BEST QUALITY•STRONGEST SUPPORT STAFF•6 YEARS BUSINESS EXPERIENCE

$350
486SX-25MHz

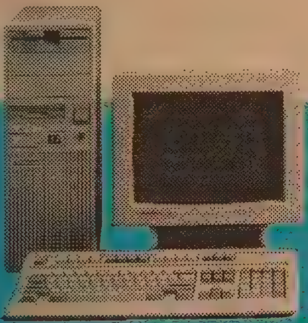
- 1MB Expandable to 32MB on Board
- 8K Internal Cache
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

$295
386-40MHz w/64K Cache

- 1MB Expandable to 32MB on Board
- 64K Static Cache Memory
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Socket for 80387
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

$295
386-33MHz 64K Cache

- 1MB Expandable to 32MB on Board
- 64K Static Cache Memory
- Landmark=57
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- Socket for 80387
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard



44MB 28MS Hard Disk	$120
85MB 16MS	$165
125MB 16MS	$185
170MB 16MS	$215
212MB 16MS	$250
340MB 16MS	$370
510MB 12MS	$750

Keyboards

Mitsumi 101 Key	$39
Keytronic 101 Key	45
Maxiswitch 101 Key	45

Floppy Drives

TEAC/Epson 1.2MB	$55
TEAC/Epson 1.44MB 3.5"	55

Hard Disks

Conner 3000 40MB	$140
Western Digital 85MB	185
Conner 85MB	185
Conner 30104 120MB	210
Western Digital 125MB	210
Maxtor 7120A 130MB 15ms	210
Conner 170MB	240
Western Digital 210MB	285
Maxtor 210MB	285
Maxtor 340MB	425
Western Digital 340MB	400
Conner 3504 510MB 12ms	770
Fujitsu 512MB 12ms	790
Fujitsu 1.2GB SCSI	1165

Modems

2400 Baud (Int)	$40
2400 Baud (Ext)	75
9600 Baud Int. V.32	155
Fax Modem (9600 Fax, 2400 Modem)	65
14,400 Modem, 14,400 Fax	170

Interface Cards

Mono Graphic Card	$20
VGA Card (16 Bit 800x600)	35
OAK SVGA (1024x768 512K)	45
Trident VGA w/1M RAM	65
Orchid Fahrenheit (1280x1024) w/1MB VRAM	175
Orchid Fahrenheit VLB w/1MB	175
Diamond Stealth VLB w/1MB	175
ATI Ultra Pro w/2MB VRAM VLB	380
Diamond Speedstar 24X	160
Diamond Stealth w/1M	175
AT M I/O (2S,1P,1G)	25
IDE Card w/cable	25
IDE VESA Cache Controller	215
Adaptec SCSI 1542C w/Kit	265
Adaptec 1742 EISA SCSI	375

Monitors

14" Flat Screen	$95
Super VGA (1024x768) .39	215
Super VGA (1024x768) .28	250
Non-Interlaced SVGA Monitor	280
Sony 1304S	535
Sony 1604	950
Viewsonic 6	320
Viewsonic 6FS	545
Viewsonic 7	900
Viewsonic 15	615
Viewsonic 17	1130
Viewsonic 8	1510
Sampo 17"	695
Nanao F550i 17" 1280x1024 .28	1015
NEC 3FGE/4FGE	605/735

Motherboards

286 6/12MHz	$75
386SX-25MHz	110
386SX-33MHz	115
386-33MHz 64K Cache	170
386-40MHz 64K Cache	175
486SX-25MHz	225
486-33MHz w/64K Cache	395
486-50MHz w/64K Cache	535

Printers

Panasonic KX-P 1123w/Cable	205
Panasonic KX-P 1624 w/Cable	345
Panasonic 1124i w/Cable	285

Miscellaneous

287-8/10	$40/40
387SX	60
387-25/33/40	65/75/85
150W (XT) Power Supply	40
230W Power Supply	48
Logitech Mouse Man	60
Logi Trackman	79
Microsoft Serial / Bus Mouse	75/85
DFI Mouse (3 Button, Microsoft Comp.)	15
Mini Vertical Case w/PS	55
Mid Mini Vertical Case w/PS	85
Full Vertical Case w/PS	110
Colorado 120MB Tape Backup	155
Colorado 250MB Tape Backup	205
Sony CD-ROM	215
RAM DIP / SIPP/ SIMM	Call

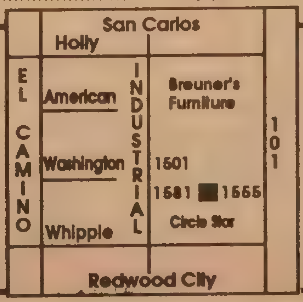
TERMS & CONDITIONS:

- Company, Government PO's Welcome
- UPS Shipping Daily

All Prices and contents subject to change w/o notice.
All brand names are registered trademarks.
Co. Term on credit approval.

Welcome to visit our
4500 sq ft. showroom!
Computers, Monitors and
printers are now
on display!
Prices Reflect Cash Discount

Located in the
San Carlos Commerce
Center Office Park



SCHWAB SYSTEMS

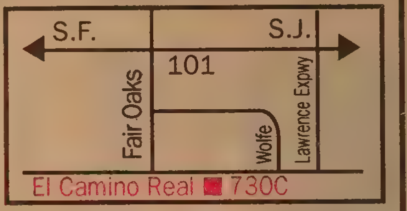
SINCE 1987

SCHWAB COMPUTER

730 EAST EL CAMINO REAL, SUITE C • SUNNYVALE, CA. 94087 • HOURS: M-F 9-6 SAT 11-4

YOUR ULTIMATE SOURCE OF HIGH PERFORMANCE SYSTEMS AND GRAPHICS PRODUCTS!

TEL: (408) 245-6666 • FAX: (408) 245-3103



486DX-33 MHz EISA/VLB SYSTEM FOR WINDOWS NT!

- NICE U.S.A. Motherboard
- 256K Up To 1 MB Cache
- 16 MB RAM Up To 128 MB On Board
- 1.2 MB or 1.44 MB Floppy Drive
- 340 MB Hard Disk SCSI
- Tower Case and Keyboard
- Ultrastor 34F SCSI VLB Controller
- Diamond Stealth VLB Video Card w/1 MB
- MAG 15F 1280NI SVGA Monitor

Call For Options:

- ATI Ultra Pro w/2 MB
- Toshiba 3401 SCSI CD-ROM
- 486DX-50 and DX2-66

$2950

486DX-33 MHz ISA/VLB SYSTEM

- Genoa VLB Motherboard
- 256K Cache
- 4 MB RAM Up To 32 MB
- 1.2 MB or 1.44 MB Floppy
- 130 MB IDE Hard Disk
- Tower Case and Keyboard
- IDE Controller VLB
- Genoa VLB Video Board
- ACER 1024NI Monitor

$1425

386DX-40 MHz ISA SYSTEM

- 128K Cache
- 4 MB RAM
- 1.2 or 1.44 MB Floppy Drives
- 85 MB Hard Disk
- Tower Case and Keyboard
- SVGA w/512K
- 14" 1024I SVGA Monitor

$899

UPGRADE YOUR 286 !!

- 80386SX-33 MHz
- 2 MB RAM
- Capable of Windows Applications

ONLY $155

GRAPHICS DISPLAYS

IDEK MF5217, 1024x768 NI, 72 Hz, 0.28mm, 17"	$899
IDEK MF8317, 1280x1024 NI, 72 Hz, 0.26mm, 17"	1099
IDEK MF5421, 1600x1200 NI, 72 Hz, 0.28mm, 21"	2380
MAG MX15F,1280x1024 NI, 72 Hz, 0.28mm, 15"	599
MAG MX17F,1280x1024 NI, 72 Hz, 0.28mm, 17"	1080
NANAO F550i, 1024x768 NI, 72 Hz, 0.28mm, 17"	1125
NANAO F560i, 1280x1024 NI, Trinitron, 0.26mm, 17"	CALL
NANAO F750i, 1024x768 NI, 72 Hz, 0.31mm, 21mm, 21"	2050
HITACHI CM2085, 1280x1024 NI, 72 Hz, 0.31mm, 20"	1400
HITACHI CM2187, 1600x1280 NI, 72 Hz, 0.31mm, 21"	2195
SONY CPD1430, 1024x768 NI, 60 Hz, 0.26mm, 14"	605
SONY CPD1604S, 1024x768 NI, 70 Hz, 0.26mm, 17"	1050
SONY GDM1936, 1280x1024 NI, 70Hz Trinitron 20"	2095
SEIKO 1450,1024x768 NI, Trinitron, 14"	495
TOSHIBA P21CR00,1280x1024 NI, 72 Hz MPRII, 0.31mm 21"	1995
NEC 3FG/4FG/5FG/6FG	CALL
VIEWSONIC 4E/5E/6E/7/8	CALL
SIGMA DESIGN DUAL PAGE MONO VGA Hi-Res	CALL

GRAPHICS ADAPTERS

ATI Graphics Ultra Accel SVGA 1280x1024, 1 MB	$325
ATI Graphics Ultra + 1024x768 16K C, 1 MB	325
ATI Graphics Ultra Pro Local Bus w/2 MB	439
DIAMOND Speedstar 24, 1 MB	140
DIAMOND Speedstar 24X, 1 MB	175
DIAMOND Stealth 24 ISA S-3 801, 1 MB	169
DIAMOND Stealth 24 VLB S-3 805, 1 MB	179
DIAMOND Stealth Viper VLB (Weitek 9000) 2 MB	449
#9GXE S-3 928 Accel, 1 MB VRAM, Level 10	399
#9GXE S-3 928 Accel, 2 MB VRAM, Level 11	585
#9GXE S-3 928 Accel, 2 MB VRAM, 1 MB DRAM, Level 12	735
ORCHID Pro Designer IIs, 1 MB	CALL
ORCHID Fahrenheit 1280°, 1 MB VRAM	205
ORCHID Fahrenheit VESA LB, 1 MB	179
AIR Star 2000 (Weitek 9000) 2 MB VRAM	429
HERCULES TI34010 Graphics Station	CALL
METHEUS VGA/1104+/Premier	CALL
NATIONAL DESIGN Volante AT Series	CALL
#9GXI Level 23-29 Series	CALL
VERMONT MICROSYS X/Series/Cobra	CALL
VIDEO SEVEN VEGA/VRAM/WIN. VGA	CALL

DIGITIZERS

CALL FOR CALCOMP, KURTA, SUMMAGRAPHICS & MICROGRID

PLOTTERS

CALL FOR HOUSTON INSTRUMENTS, ENCAD & ROLAND

MOTHERBOARDS

ISA	
486DX 66/50/33 w/o CPU	$110
386DX 40/33 w/o CPU	99
386SX 33 w/CPU	99
VESA LOCAL BUS	
486DX 50/33 w/o CPU	$145
EISA VESA LOCAL BUS	
486DX 66/50/33 w/o CPU	$275

HARD & FLOPPY DRIVES

MAXTOR	
130MB IDE	$209
200MB IDE	299
340MB IDE	529
200MB SCSI	369
340MB SCSI	599
1.2GB SCSI	CALL
1.7GB SCSI	CALL
FUJITSU	
525MB SCSI	$899
1.2GB SCSI	1199
WESTERN DIGITAL	
340 MB IDE	$469
SYDOS	
Puma 88 Ext	$459
FLOPPY DRIVES	
1.2MB/1.44MB	$50
Dual 1.2/1.44MB	149

MONITOR

14" .39 (1024)	$225
14" .28 1024/NI	259/320
14" Flat Screen Mono	95

VIDEO CARDS

SVGA 512K (1024)	$39
SVGA 1MB (1024)	56

TAPE BACK-UP

COLORADO	
DJ10 (120MB)	$165
DJ20 (250MB)	215
Tracker	445

CASES

Baby AT w/200W	$79
Baby Tower w/230W	85
Mid Tower w/230W	105
Full Tower w/250W	138
Slim Case w/200W	95

KEYBOARD

NORTHGATE	
101 Omni	$68
Ultra	94
FOCUS	
2001 101 Click	$45
5001 130 Key w/ac	64
OTHERS	
Maxi 101	$35
Keytronics 101	35
BTC101	25
Lite On 101	29

PRINTERS

PANASONIC	
1180i/1123	$158/199
1124i/1624	285/349
2123/2124i	239/319
2180/2624	169/375

MOUSE

Microsoft Ser/Bus	$55/85
Logitech Mouseman	55
Logitech First	35
Logitech Trackman	69
Microspeed Track Bus	99
Microspeed Serial	83
3-Button Mouse	14

NETWORK

ARTISOFT	
AE-2 Starter Kit/Win	$485
AE-3 Starter Kit/Win	565
Articom	232
Central Station	379
AE-2 Ethernet Adapter	199
AE-3 Ethernet Adapter	235
AE-2/T 16 Bit 10BT	210
AE-1/T 8 Bit 10BT	135
2Mbps Adapter	145
3COM	
3C503/TP	$195/215
3C507/TP	279/299
3C509/TP	139/139
SMC (Authorized Dealer)	
8 Bit Elite Plus	$129
16 Bit Elite Plus	155
16 Bit TP Elite Plus	169
Full Line Of SMC	CALL
NOVELL (Authorized Dealer)	
NE1000	$110
NE2000	165
NE2000TP	175
NE3200	670
Netware 2.2 5 User/10 User	479/1079
Netware 3.11	CALL
Full Line Of Novell	CALL

CONTROLLER & I/O

ADAPTEC	
1522 w/Kit	$145
1542B/C w/o Kit	215
1640	330
1742 EISA SCSI	439
ULTRASTORE	
15C IDE Cache	$239
14F SCSI	239
24F SCSI EISA	450
34F SCSI VESA	295
OTHERS	
IDE w/2S/P/G	$18
2S/P/G	15

MODEM

ZOLTRIX	
2400 Int w/MNP5	$45
96/24 SR/Fax w/MNP5	70
14.4/Int Fax Modem	199

CD-ROMS

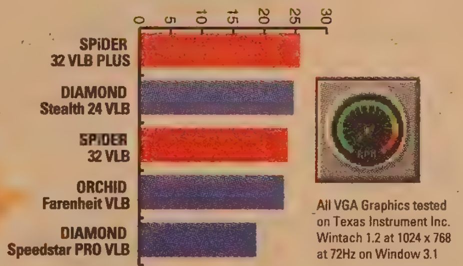
Sony 31A 400ms	$219
Mitsumi 370ms	219
Toshiba 3401B 200ms	449
Toshiba 3401B Ext.	499

■ WE OFFER LIFETIME FREE TECHNICAL SUPPORT WITH EVERY SCHWAB SYSTEM SOLD PLUS ONE YEAR PARTS AND LABOR WARRANTY.
■ PRICES AND AVAILABILITY AND SPECIFICATIONS ARE SUBJECT TO CHANGE W/O NOTICE ■ NOT RESPONSIBLE FOR TYPOGRAPHIC ERRORS ■ GOVERNMENT, UNIVERSITY AND QUALIFIED FIRMS PO ACCEPTED

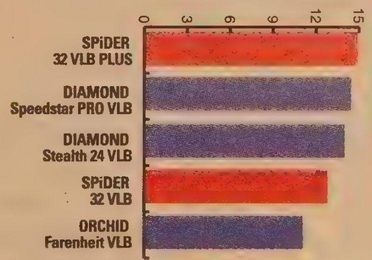
SPiDER graphics, inc.
Available Now!
Spider 32 VLB PLUS
30x Faster than Super VGA
24 Bit Graphics Accelerator
16.7 Million Colors

Performance Test	SPiDER 32 VLB PLUS	SPiDER 32VLB	ORCHID Farenheit VLB	DIAMOND Stealth 24 VLB	DIAMOND Speedstar PRO VLB
WINTACH 1.2	26.32	23.81	23.19	24.72	18.77
ZD WINBENCH 3.11	[illegible]	12.80	11.00	[illegible]	[illegible]
RETAIL PRICE	$155.00	$125.00	$240.00	$240.00	$170.00
[illegible]	YES	YES	YES	NO	NO

(Test on 486-50DX with Windows 3.1 in resolution 1024x768x256 Colors, 1MB RAM on following motherboards chipset SIS, CONTAQ, OPTI, UMC, USA CHIP SET)



All VGA Graphics tested on Texas Instrument Inc. Wintach 1.2 at 1024 x 768 at 72Hz on Window 3.1



ZD Labs

PC Magazine ZD Labs' WinBench V3.11 test results were performed by Spider Graphics Inc. Independently of any testing performed by Ziff-Davis Publishing.

Coming Soon!

The *FASTEST* ISA BUS with X15 II T Chip Sets

90Hz in resolution up to 1280 x 1024 VESA VGA and VESA XGA for Windows

SPiDER Black Widow Engine
16-Bit AT (ISA) Bus (available June 25)

SPIDER Black Widow VLB
15% Faster than ORCHID P9000 & Diamond Viper VLB (available June 25)

SPiDER 32 VLB PRO
50% Faster than S3(805) Chip Set
(available July 16)

Driver Supports:

Windows 3.0, 3.1
AutoCad R.9, 10, 11, 12
GEM Ver 2.2
Lotus 1-2-3 R.2.0, 2.1, 2.2
Symphony R1.1
Ventura Publisher Ver 1.1, 2.0
WordPerfect 5.0, 5.1
Wordstar 4.0
Autodesk 3D Studio
OS/2 PM Ver 2.0
AutoDesk-Shade Ver 2.0
PCAD
MS-Word

Specifications:

Bus Compatibility
Supports VESA LOCAL BUS (VL-BUS)

Resolution	1 MB	2 MB
640 x 480	16.7 M Colors	16.7 M Colors
800 x 600	64K Colors	64K Colors
1024 x 768	256 Colors	64K Colors
1280 x 1024	16 Colors	256 Colors

Highest resolution of 1280 x 1024 in 256 colors (with 2MB of RAM)

End-users please call the following dealers:

Art Computer	(408) 946-7852
Pixel USA Computer	(408) 929-7218
Berlin Technology	(408) 297-7138
Computer Art II	(916) 366-7128
HD Computer	(510) 528-0723

Retailers Please Call (408) 956-1231 For Your Distributors

MADE IN U.S.A

MICROSOFT. WINDOWS. COMPATIBLE

SPiDER. Graphics, Inc.

801 Ames Avenue • Milpitas, California 95035 • 408 956-1231 • FAX 408 956-1342

Spider Graphics, Inc. and Spider 32 VLB are registered trademarks, and all other product or brand names are property of their respective owners. © 1993, Spider Graphics, Inc. All rights reserved. Features and specifications subject to change without notice.

Paradox: The Paradigm Shift

Borland's All-New Paradox For Windows

BY BIRRELL WALSH

RESOURCES:

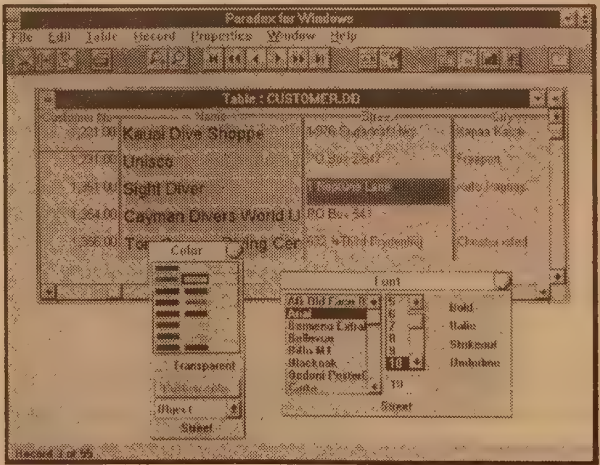
Paradox For Windows
$139.95 "while supplies last"
Price $795 after that
SuperPack: $199.95
Quattro Pro for Windows 1.0 + Paradox for Windows 1.0.
Registered Owners of *any* Borland products: $139.95 forever

With Paradox for Windows, Philippe Kahn has come out swinging in the Windows database war. This is a product like no other: a huge, robust Windows native with exquisite graphics and a fine interface design. Professionals are going to love what Paradox for Windows makes possible. But there are so many—well, paradoxical—things to say about Borland's Paradox for Windows that the reader is due a summary:

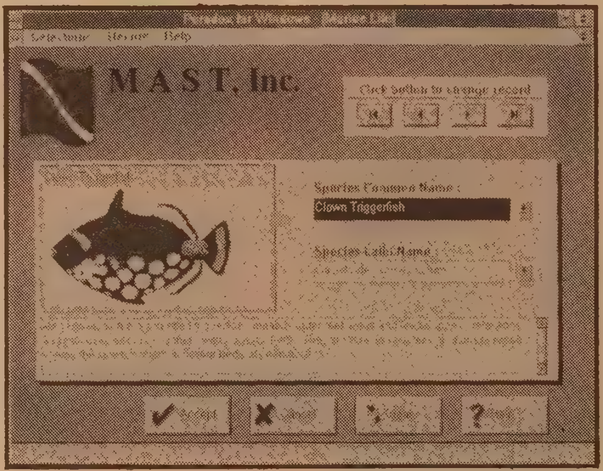
It's *big.* It's not like the old Paradox, so be prepared to learn new tricks. It is really a Paradox-cum-dBASE, as it works with both in native format. The Paradox Application Language is entirely new. Its object-orientation makes it very powerful and sometimes very annoying. It is lovely for designing an interface, and for managing output. It has odd interactions with some other programs. It may be the first twenty-first-Century database.

IT'S BIG

"Big" means that it will run grudgingly in four megabytes. I had four megabytes of RAM on my 386/33 system, and I tried running Paradox for Windows in that amount of memory. It was extremely slow and awkward—considerably slower than my previously installed Paradox 3.5 for DOS. When I upgraded to 8 MB of RAM, everything speeded up, and Paradox for Windows outperformed Paradox 3.5.



Even with eight megabytes installed, Paradox for Windows wants a lot of it for its own exclusive use. I was able to run Microsoft Word for Windows at the same time, so the average amount of Windows traffic will probably coexist on a computer with eight megabytes of RAM. Don't expect to have another huge program running at the same time. Do not expect to run Paradox for Windows in less than 6 MB. Do include RAM-upgrade costs in your estimates of the expenses of changing to Paradox for Windows.



A DATABASE FOR ALL YOUR DATA

As Borland now owns dBASE, the hordes of the Kahn decided to make Paradox for Windows capable of working with Paradox tables of various formats, and all dBASE databases, without conversion. This means that if you have data that was recorded in dBASE format by dBASE III or IV, or by FoxBase or any of the supersets of dBASE, you can work with that information in Paradox for Windows without conversion. The file format remains the same. This can permit a company to adopt the software without having to change data formats.

For a number of years Paradox users envied dBASE users their access to the MEMO field, in which one could store a huge amount of text. Now Paradox for Windows has memo fields (unformatted text), formatted memo fields (RTF with font, color and spacing information), binary (data Paradox can't interpret, like sound), graphics files (PCX, BMP, EPS & GIF), and OLE (dynamically connected to other application) fields. Binary, memo and formatted memo, OLE and graphics fields are in "binary large object" or BLOB files, kept separate from the main table. An SQL engine will soon follow. There are no forms of computer information that cannot be accessed from within Paradox for Windows.

BUILDING AN INTERFACE

When you look at Paradox for Windows' first screen, you find a set of icons along a bar at the top. Clicking one of those icons will let you design reports and on-screen forms with a superb set of design tools. As you choose which kind of object to build, the iconbar changes to provide you with the tools you need.

Because Paradox for Windows is object-oriented, each thing you see on the screen is an object with a set of characteristics. Borland uses the right-hand mouse button to open an object inspector. Don't like the look of that field? Click on the right mouse button and a list of all the properties of the field appear—color, style, labeling, and so on. From this menu and its daughters you can change any of the field's properties without ever moving the mouse from the area where the field is situated. You can change buttons, fields, on-screen text, the screen itself.

Objects can be included within other objects. As you design a form, you can insert graphs that change in real time, or graphic objects from a database, or even graphics imported from outside. You can add cross-tabulations that Paradox for Windows will build for you. The graphs, the crosstabs and the graphic fields are also objects, and their

continued on page 244

Copyright © 1993 by Birrell Walsh. All rights reserved.

1000's of Satisfied Customers - Proud Memory Supplier to Fortune 1000 Companies

CMC
INCORPORATED
Exclusively Specializing In Memory

As Memory Brokers We Can Offer The Most Aggressive Pricing To End Users

#1

#1 Source for Memory, CPU's, and Math Co-Processors in Silicon Valley

100% Compatibility Guaranteed On Proprietary and Laser Printer Memory

Highest Quality, Major Brands, SIMMS Tested In-House. Minimum 3 Year Warranty On All Memory

MAC Memory

1X8-120/100ns 8 Chip	$23/26
1x8-80 2 Chip/8 Chip	28/32
1x8-70 2 Chip/8 Chip	31/33
2x8-80/70	66/69
4x8-80/70	CALL
16x8-80/70	CALL
Mac IIfx 4/16MB Kit	139/520
256K VRAM	28
512K VRAM	55
16/32/64/128MB Kits for Quadra 700/900 & MAC IIfx, ci	CALL
NEW! - 72 PIN SIMMS (32 BIT)	
For LCIII, Centris 610/650 & Quadra 800	
2MB-70ns	$79
4MB-70ns/60ns	139/159
8MB-70ns/60ns	279/299
16MB-70ns/60ns	549/CALL

SIMMS

IBM TYPE	
1x9-60 3 Chip 30 pin	C
1x9-70 3 Chip	A
1x9-80 3 Chip	L
1x9-80/70/60 9 chip	L
1x9-80/70 SIPPS 9 chip	38/39
1x9-100 9 Chip	29.00
4x9-60	CALL
4x9-70	CALL
4x9-80	CALL
16x9-70	CALL
72 PIN SIMMS (36 BIT)	
256Kx36-10/80/70	$34/38/45
512Kx36-80	79.00
512Kx36-70	84.00
1x36-80/70	139/155
1x36-60	CALL
2x36-80/70/60	275/294/CALL
4x36-80/70/60	570/585/CALL
8x36-70 **NEW!**	CALL

DRAMS

DIPS		
256x1-80/70	16 Pin	$1.75/1.95
256x1-100/120	16 Pin	1.45/1.20
256x4-70/80	20 Pin	4.25
256x4-60	20 Pin	4.75
64x4-80/100	18 Pin	1.50
1x4-80	20 Pin	17.00
1MBx1-70/80	18 Pin	4.25/3.95
ZIPPS		
64x4-10/12 Page	18 Pin	4.50
256x4-80/70 Page	20 Pin	6.00
256x4 VIDEO Page	28 Pin	12.00
256x4 VIDEO Static	28 Pin	14.00
1x4-80/70 Page	20 Pin	17.00
1x4-80/70 Static	20 Pin	CALL
SOJ		CALL
CACHE MEMORY		
32Kx8-20/15	28 Pin	$6.95/7.95
64x4-20/15		8.50/11.95
8Kx8-20/15	28 Pin	3.75/4.75
16Kx4-20/15		3.75/4.50
64x1-20/15		5.75/7.50
128x8-100	32 Pin	CALL
128x8-25/20	32 Pin	36/47

MATH CO'S

287-10 Intel	40 Pin	$45
8087-1/2/3	40 Pin	79/49/29
287XL Intel, Cyrix	40 Pin	53
387SL Intel		79
387SX-16/20		49/64
387SX-25 Intel		69
387SX-33 ULSI, C&T		74
387DX-20 Intel		44
387DX-25 Intel		64
387DX-33 Intel		74
387DX-40 Cyrix/IIT		85
4167-33 Weitek		CALL

CPU CHIPS (Microprocessors)

Cyrix, TI 486DLC -33/40	129/175
386, 486, All Speeds & 486DX2-50/66	CALL
Heatsink w/fan for 486's	$18

TEAC FLOPPY DRIVES

1.44MB 3.5"	$54
1.2MB 5.25"	$57
Dual FD 1.2/1.44MB	145
Bracket Kit	6.50

LASER PRINTER MEMORY

Note: Price Includes Memory, Board & Installation Instructions

IBM LASER		
4019/4019E	1/2/3.5MB	$89/119/169
4029 (All Models)	4MB	139
EPSON LASER		
EPL 6000	2/4MB	$114/175
EPL 7000	2/3MB	125/159
Action Laser II	2/3/4/5MB	108/139/169/199
Action Laser 1000	2MB Kit	72
HP LASER		
HP IIP,IIP+, III, IIID, IIIP	1/2/3/4	64/99/134/164
HPII/IID	2/4MB	$105/169
HP 4/4M,	4/8MB	149/289
IIIsi	4/8MB	138/264
LaserJet FAX	1MB	82
DeskJet 500/500c/550c	256K	52
Design Jet Plotter	4MB	144
PANASONIC LASER		
KXP4410/KXP4430	1/2/3/4MB	$89/115/149/184
KXP4420/4450i/4451	1/2/3/4MB	79/108/139/169
KXP4450	1MB	111
KXP4455	2MB	129
OKI LASER		
OL400	1/2MB	$84/109
OL800/820	2/4MB	109/165
OL810	2/3/4MB	145/179/219
QMS LASER		
PS 410	2/3/4MB	119/165/189
PS 860, 1700	1/4/8MB	53/133/266
PS 815, 825, 815MR, 825MR	2/4/6	168/232/295
SHARP LASER		
9500PS	1MB	55
JX-9500/9700	1/1.5/2.5/4MB	105/135/188/344
OTHERS		
Brother HL-4	2/3/4MB	119/165/189
Brother HL-8E, V	1/2MB	99/139
Compaq Pagemarq 15 & 20	1/4/8	49/139/266
Canon LBP4	1/2MB	145/185
Fujitsu RX7100/7200	1/2MB	185/245
Kyocera F800, F800A, F800T	2/4MB	145/205
NEC Silentwriter 90/290	1MB/2MB	99/124
NEC Silentwriter 95	2MB	104
TI Microlaser	1MB	49

LIFETIME WARRANTY

NOTEBOOK/LAPTOP MEMORY

Altima LSX	2/4MB	165/229
Avanti	2/4MB	74/144
AST Premium Exec	4/8MB	134/269
AST Power Exec 3/25	4/8/16MB	CALL
Compaq Contura, lite 20/25	2/4/8MB	99/154/289
LTE Lite 4/25, 25C	4/8MB	214/349
Chaplet Notebook	2/4MB	155/245
Chicony 386SX	4MB	185
Chicony 386SL/25	2/4MB	129/229
DECPC 320P	2/4/6MB	169/259/349
DELL 320N & 212N	1/2MB	85/125
DELL 320N+	2MB	125
DELL 325N; NC	2MB	179
DELL NL25 &NL20	2MB	179
Epson NBS3	1/4MB	98/225
Everex TempoLX	2MB	88
Gateway Nomad 425 DXL	4MB	229
HP 95LX	1/2MB	159/279
IBM L40SX, N33/SX	2/4/8MB	99/155/315
IBM N51 SX & SLC	2/4/8	105/169/299
IBM PS/2 N45 SL	2MB	139
MAC PB 160, 180	6/10MB	249/425
MAC PB 140,170	2/4/6MB	89/175/229
MAC PB 100	2/4/6MB	89/179/239
Mac Duo 210/230	4/6/8	199/289/349
Magnavox Metalis 386SX	4MB	195
NEC Ultralite 286F	1/4MB	99/199
NEC Ultralite III, SL25C	2/4/8MB	139/249/425
Packard Bell 386/SX	1/4MB	99/210
Panasonic CF 170/270/370	1MB/2MB	65/99
Sharp PC 8501	2MB	105
Sharp 6781/6881/6800	2/4MB	119/199
Sampo NB SX/16, SX/25	2/4MB	145/225
TI Travelmate 2000	1MB	77
TI Travelmate 3000	2MB	69
TI Travelmate 4000	4MB	219
Zenith 320L, 325LB	2/8MB	185/495
Zenith Turbosport 386, E	1/4MB	95/299
Zenith Supersport SX	2MB	145
Zenith Mastersport	2MB	99
ZEOS 286, 386	2MB	88

MEMORY UPGRADES

IBM PS/2 & PS/1 MEMORY

MODEL		IBM P/N	
PS/1 286/386SX	2/4MB		$95/149
PS/1 Consultant, Essential/ Expert	1/2MB		45/79
	4/8MB		155/299
386 Valuepoint	2/4/8		89/159/305
486 Valuepoint	4/16MB Kit		149/595
PS/2 30-286	2MB	30F 5360	89
50Z, 55SX, 65SX, 70	2MB	6450604	79
	4MB	34F2933	145
40SX, 35SX, 35LS	2MB	6450604	79
	4MB	87F9977	149
70A21, A6I, 121	2MB	6450608	84
80-111, 121, 311	2MB	6450379	109
80-A21, A31, A61	4MB	6451060	210
95, 90, P75, PS/1 Pro	2MB	6450902	110
	4MB	6450128	149
	8MB	6450130	295
16 Bit Exp. Bd. for Model 50, 50Z, 60, 65SX	0K	6450609	144
32 Bit Exp. Board for All 70 & 80 Models	0K	64F30XX	164
RISC 6000	16MB	4010	745
	32MB	4033	1490
	64MB	4036	2890
Other Models			CALL
IBM LAPTOP/NOTEBOOK MEMORY			
CL57SX	2/4/8MB		125/219/375
L40SX	2/4/8MB		95/149/315
N33SX	2/4MB		95/149
N51SX & SLC	2/4/8MB		105/169/309
Thinkpad 700, 700C	2/4/8MB		125/219/375

COMPAQ MEMORY

MODEL		P/N	
LTE 286	2MB	117081-002	$115
	4MB	117081-003	175
SLT 286	4MB	110237-001	299
LTE 386S/20	1MB	121125-001	59
	4MB	121125-002	195
Contura, Lite 20/25	2MB	129769-001	105
	4MB	129769-002	155
	8MB	129769-003	295
LTE Lite 4/25, 25C	4MB	142337-002	219
	8MB	142337-003	355
Portable 386	1MB	107651-001	109
	4MB	107653-001	299
Portable III	2MB	107332-001	79
	EBD	167811-001	199
SLT 386	2MB	118304-001	119
	4MB	118305-001	185
Deskpro 386S (E.Board)	4MB	113634-001	239
	4MB	112534-001	169
Deskpro 386/33L, 486/33L, /50L/25	2MB	115144-001	99
	8MB	116561-001	335
	32MB	116568-001	1275
	6 Socket E. Board		CALL
Deskpro 386/20e, 25e (Expansion Board)	4MB	113645-001	239
Deskpro 386/20,20e,25,25e	4MB	113132-001	169
Deskpro 286N, 386N, 386SX/20, 386/25M, 486/33M, 486S/25M, 486S/16M, Systempro, LT486SX/25S, 386 25S	2MB	118689-001	95
	4MB	118690-001	145
	8MB	128877-001	294
Deskpro 486/33L, 486/50L, 386/33L			CALL
Prolinea 3/255 & 3/252S	2MB	141738-001	105
	8MB	141742-001	375
Prolinea 4/33	2MB	141682-001	95
	4MB	141684-001	159
	8MB	141685-001	299
Other Models			CALL

SUN MEMORY

SPARC SLC	4MB	$145
3/60, 80; 4/40, 60, 65	4MB	145
	16MB	495
SPARC 1 & 1+, IPC	4/16MB	140/510
SPARC 10	16MB	625
	64MB	CALL
SUN Classic	16MB	655
SPARC Server 630np	64MB	CALL
SUN IPX, ELC	4/16MB	155/540
SUN 4/110	16MB	505
SPARC II	16MB	545
Other Models		CALL

AST MEMORY

BRAVO 386SX/16	2MB Kit	$79
BRAVO 3/33(LC), 3/25S	2/8MB	84/289
BRAVO 486/25 & 4/33	2/8MB	89/299
BRAVO 486LC	4/8/16MB	145/295/565
Cupid-32 Board	0K	199
Premium 386C	4MB	145
Premium SE 450	32MB	1595
Premium 386/25, SX, 33, 486/25	1MB	39
Premium II 386, 486	1/4MB	37/145
Executive Notebook	4MB (70ns)	139
Other Models		CALL

DELL MEMORY

MODEL		P/N	
433P, 333P, 325P, 333D, 325D	1MB	310-2505	$44
	4MB	310-2507	155
433TE, 425TE & Powerline Workstation	2MB	310-2466	109
	4MB	310-2467	175
	8MB	310-2468	319
	16MB	310-2469	649
Power Desktop 486D, D/33, D/25, D/20, D/66, 486P/66, P50	1MB	310-2505	44
	4MB	310-2507	155
	16MB	310-2625	595
Other			CALL

NEC MEMORY

MODEL		P/N	
Prospeed 286, 386SX/16	1MB	PC-21-21	$99
	2MB	PC-21-26	165
	4MB	PC-21-22	229
Prospeed 386	2MB	PC-31-21	165
	8MB	PC-31-22	419
Prospeed SX/20	1MB	PC-43-21	105
	4MB	PC-43-22	229
Powermate 386/25S	2MB Kit	OP-41-5201	129
	8MB Kit	OP-41-5202	359
Powermate 486/25E, 386/33E	2MB	OP-41-5101	195
Powermate 486/50I, 486/33I	2MB Kit	OP-410-8103	85
	8MB Kit	OP-410-2101	345
Powermate Express Series			CALL
Others			CALL

OTHER MEMORY

Silicon Graphics	CALL

TOSHIBA MEMORY

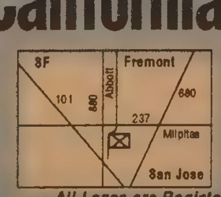
T8500, T5200	2MB	105/335
T5100, T3100E, T1600	2MB	84
T3100SX	2/4MB	105/157
T3200SX, SXC	2/4MB	99/157
T4400SX, SXC, T6400	2/4MB	115/169
	8MB/16MB	315/749
T3300SL	4/6MB	157/249
T1000SE & T1000XE	1/2MB	99/129
T2200SX, SXE, T1000LE	2/4/8MB	105/157/279
T1800/T1850	2/4/8MB	109/159/279

PCMCIA

(Jeida 4.0, Credit Card Type)

128K	CALL
512K	105
1MB	159
2MB	279

California Memory & Components, Inc.



356 S. Abbott Ave. , Milpitas, CA 95035

Tel: 408/956-8291

Fax: 408/956-8584
Mon-Fri 9-6, Sat 11-3

All Logos are Registered Trademarks of their Respective Companies. Price & Availability Subject to Change.

DINERS CLUB
CASH
VISA
C O D

Verification to Prevent Fraud

- **Government, University and Corporate purchase orders welcome**
- Same day shipping available
- All Items are brand new
- No surcharge for Credit Cards
- Quantity Discount for Resellers, VARS & Dealers
- 100% Compatability on Proprietary Memory
- 15% Restocking Fee on Refused Shipments
- All Sales Are Final
- Shipping is not refundable
- Not responsible for typographic errors

USM

US MACH

US MACH Systems
USM Distributors

VISA Incorporated 1983 MasterCard

HOURS: M-F 9-6 • Sat 10-5

Price and availability subject to change.
No surcharge for credit cards.

Visit our stores
In SOUTHERN CALIFORNIA:
USM BREA (714) 255-0113
USM IRVINE (714) 252-8335

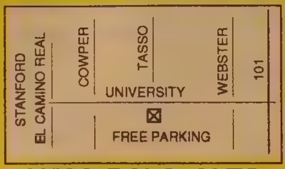
American Megatrends

FACTORY AUTHORIZED DISTRIBUTOR

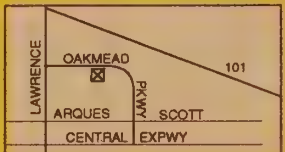
American Megatrends

101
HILLTOP BUSINESS CENTER
BLDG 11
GRANDVIEW
E. GRAND

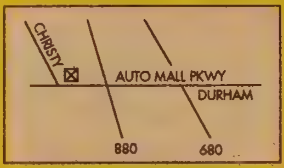
USM SAN FRANCISCO
1101 Grandview Drive So. San Francisco, CA 94080
415-952-5885 FAX: 415-266-9134



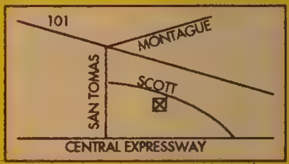
USM PALO ALTO
540 University Ave.Palo Alto, CA 94301
415-325-0651 FAX: 415-325-2459



USM SUNNYVALE
1290 Oakmead Parkway, Sunnyvale, CA 94086
408-738-8291 FAX: 408-738-8299



USM FREMONT
43104 Christy Street Fremont, CA 94538
510-623-9040 FAX: 510-623-7592



USM SANTA CLARA
3070 Scott Blvd. Santa Clara, CA 95054
408-980-0603 FAX: 408-980-0604

American Megatrends

STATE OF THE ART TECHNOLOGY

The World Leader in AMI BIOS & Hardware Design

FREE Hayes 2400B Modem with AMI VLB System Limited Promotion

FREE AMIDIAG Diagnostic software/manuals w/every AMI System PC Magazine Editor's Choice

MS DOS 6.0 and Serial Mouse included

FREE 1 year On-site Service support for Corporate volume buyers

American Megatrends

Enterprise III 486-66MHz EISA-VLB w/256k cache

Pentium Ready (ZIF)

2.88MB Floppy Included

- Intel 486-66DX2 CPU
- Intel P24T Support-ZIF socket
- 8MB RAM exp. to 256MB
- 256K Static RAM cache
- Toshiba 2.88MB & TEAC 1.2 or 1.44MB FD
- Maxtor 245MB, 15ms hard disk
- Superfast Appian 32bit VESA IDE I/O
- Cirrus Logic 16M True Color 32bit VESA SVGA
- Viewsonic 6e SVGA monitor • MS DOS 6.0
- 101 Enhanced Spillproof keyboard
- Diamond full tower case w/250W PS
- 6 EISA & 2 VLB/EISA bus mastering slots
- Hayes 2400B SmartModem (limited)
- AMIDIAG Diagnostic software & manuals
- Full burn-in • 1 year parts & labor warranty
- Serial mouse

Enterprise III
486-33 $2495

$2695

All upgrade options available

American Megatrends

SuperVoyager 486-66 MHz VESA Local Bus - 256k cache

Pentium Ready (ZI

16550 UARTS

- Intel 486-66DX2 CPU
- Intel P24T Support-ZIF socket
- 4MB RAM exp. to 64MB
- 256K Static RAM cache
- TEAC 1.2MB & 1.44MB floppy drives
- Conner 170MB hard drive
- Built-in IDE IO (2 serial 16550 UART & 1 parallel ports)
- Cirrus Logic 16M True Color 32bit VESA SVGA 1MB
- Viewsonic 6e SVGA monitor • MS DOS 6.0
- 101 Enhanced Spillproof keyboard
- Diamond mid tower case w/250W PS
- 6 ISA & 2 VLB/ISA bus mastering slots
- Hayes 2400B SmartModem (limited)
- AMIDIAG Diagnostic software & manuals
- Full burn-in • 1 year parts & labor warranty
- Serial mouse

SuperVoyager VLB
486-33 $1995

$2195

All upgrade options available

OPTIONS:
Custom Configured Systems are US MACH's Specialty.
We guarantee the best price on all peripherals & software.
VIDEO CARDS: AMI FastView VLB, Diamond Viper, Orchid P9000, ATI Mach 32 VLB, and more
MONITORS: NEC, NANAO, MAG, Viewsonic
HARD DISKS: Maxtor, Conner, Fujitsu, Toshiba, WD
CONTROLLERS: AMI FastDisk, Ultrastor 34F, Adaptec, Promise
Please Call or Fax Your Configuration for the BEST System at the BEST Price!

American Megatrends

MegaViews - Did You Know!!

• In the January issue of PC Sources, the four top ranked systems all used the SuperVoyager motherboard from American Megatrends.

"When it's all said and done, the biggest difference between motherboards and between systems comes down to chip design."

"Among the 11 reviewed systems, five chip set vendors are represented: American Megatrends, Micronics, Opti, SIS and VLSI. Of these, without a doubt, the most efficient design is American Megatrends."

MICRONICS

Authorized Distributor

USM

US MACH

FREE
Hayes 2400B
Modem with
AMI VLB System
Limited
Promotion

FREE
1 year
On-site Service
support for
Corporate
volume
buyers

MS DOS 6.0
& Serial Mouse
included

MICRONICS EISA-VLB System 486-66MHz w/256k

Pentium Ready (ZIF)

2.88MB Floppy Included

- Intel 486-66DX2 CPU
- Intel P24T Support-ZIF socket
- 8MB RAM exp. to 256MB
- 256K Static RAM cache
- Toshiba 2.88MB & TEAC 1.2 or 1.44MB FD
- Maxtor 245MB, 15ms hard disk
- Superfast Appian 32bit VESA IDE I/O
- Cirrus Logic 16M True Color 32bit VESA SVGA
- Viewsonic 6e SVGA monitor • MS DOS 6.0
- 101 Enhanced Spillproof keyboard
- Diamond full tower case w/250W PS
- 6 EISA & 2 VLB/EISA bus mastering slots
- Hayes 2400B SmartModem (limited)
- Full burn-in • 1 year parts & labor warranty
- Serial mouse

EISA - VLB
486-33 $2395

$2595

All upgrade options available

MICRONICS Motherboard Special! VCP VESA Local Bus

VCP 486-33MHz w/256k $695
VCP 486-66MHz w/256k 895

MICRONICS VLB System VCP 486-66MHz w/256k

- Intel 486-66DX2 CPU
- 4MB RAM exp. to 64MB
- 256K Static RAM cache
- TEAC 1.2MB & 1.44MB floppy drives
- Conner 170MB hard drive
- Built-in VLB IDE IO
- Cirrus Logic 16M True Color 32bit VESA SVGA 1MB
- Viewsonic 6e SVGA monitor • MS DOS 6.0
- 101 Enhanced Spillproof keyboard
- Diamond mid tower case w/250W PS
- 6 ISA & 2 VLB/ISA bus mastering slots
- Hayes 2400B SmartModem (limited)
- Full burn-in • 1 year parts & labor warranty
- Serial mouse

VCP VLB
486-33 $1795

$1995

All upgrade options available

VESA LOCAL BUS SUPER SALE!!

ORCHID • Prima • Percom

Loaded with: 32bit VLB IDE • 32bit VLB 16M True Color SVGA
Conner 170MB or Maxtor 245MB HD

CONFIGURATION:

- 486-33DX/486-66DX2
- VESA Local Bus Motherboard Percom/Prima/Orchid/Micronics/AMI
- 4MB, 70ns RAM
- 256k Static RAM Cache
- 32bit VLB IDE
- 32bit VLB True Color SVGA
- SVGA monitor 1024x768 .28dp
- 2 Floppies—1.2MB & 1.44MB
- Conner 170MB or Maxtor 245MB HD
- 2 serial, 1 parallel, 1 game ports
- 101 Enhanced Keyboard
- Minitower or desktop case
- 1 year Parts & Labor Warranty

FREE
Serial
Mouse

	170MB	245MB
Percom 486-33 VLB	$1345	$1395
Prima 486-33 VLB	$1445	$1495
Orchid 486-33 VLB	$1545	$1595
Percom 486-66 VLB	$1545	$1595
Prima 486-66 VLB	$1645	$1695
Orchid 486-66 VLB	$1745	$1795

US MACH EMERALD ISA SERIES

Powerful yet Affordable!!

CONFIGURATION:

- 4MB, 70ns RAM
- Conner 170MB/Maxtor 245MB HD
- 2 Floppies—1.2MB & 1.44MB
- SVGA Monitor 1024x768 .28 dp
- SVGA Card w/1MB
- 101 Enhanced Keyboard
- 2 Serial, 1 Parallel, 1 Game port
- Enhanced Case, Minitower
- 1 year Parts & Labor Warranty

FREE
Serial
Mouse

	170MB	245MB
386-40/128k	$1045	$1095
486-33DLC Cyrix	$1195	$1245
486-50SLC2 IBM	$1245	$1295
486-33DX INTEL	$1295	$1345
486-66DX2 INTEL	$1495	$1545

Upgrading Your System? Go US MACH! Best Product, Price, Quantity, Service!

OS/2: Software And Hardware Considerations

BY FABIAN PASCAL

As of this writing a major upgrade of OS/2, v2.1, is "around the corner" (in the software industry's terms, of course). With the fixes, changes, and enhancements expected in the new version, it makes little sense to bother with the current one. For example, now the user must first install the General Avail-ability (GA) v2.0, then apply a Service Pak (SP) for various fixes. These procedures are not exactly quickies and, depending on one's hardware, not always straightforward either; even then problems remain. Discussing all this just before it may get resolved is not very productive.

As I mentioned last month, OS/2 offers some important advantages, but it is also more demanding with respect to software and hardware. Consequently, I am using the wait to clarify some hardware and software issues, in preparation for the new version.

HARDWARE

Hardware is undergoing constant and rapid changes, and the standardization that has usually driven the PC market is quickly disappearing. Choosing a compatible platform that not only supports, but also allows users to take full advantage of OS/2 is not as simple as the choice for a DOS system was. Quality of components and integration, and all sorts of obscure technical details of which DOS was very tolerant, become a problem when hardware is exercised by sophisticated operating systems like OS/2.

But the industry's increasing competition on price, and the lack of appropriate information on OS/2 compatibility and suitability to task for the less expensive hardware, may distract the average PC user from a careful purchase. Many users trying to run OS/2 find that their existing, or even newly purchased, inexpensive clone is limiting, quirky, or slow at best, and incompatible at worst. Last month's article showed, for example, how a quite common IRQ deficiency can prevent multitasking in OS/2, or inhibit its performance.

Except for the "established" vendors (e.g. Compaq, Zenith, Hewlett-Packard, DEC, Dell), vendors of IBM compatibles have not licensed OS/2, and it is unclear whether they'll do so in the future. While OS/2 runs on many machines, this is not formally tested, and many vendors are simply not familiar with the system. IBM publishes a continuously expanding list of compatible hardware, but it is simply impossible to test all components and combinations thereof. Also, the more inexpensive the product, the less the chance that it will be sent to IBM for evaluation.

You can probably get a better OS/2 platform by selecting carefully among quality components from vendors already committed to OS/2, and having them put together by a reputable, knowledgeable, and supportive assembler. This may seem to increase the potential for problems but, in fact, even if you purchase an IBM, IBM-approved, or OS/2 licensee system, chances are you'll still encounter quirks. These systems are also assembled from individual components (over which you have less control), and better understanding of, or support for OS/2 are not guaranteed.

- **Processor:** While the 486 is currently the de facto standard, the next generation of chips, such as Pentium (Intel), PowerPC (IBM/Apple/Motorola), Alpha (DEC), and RISC processors makes the future uncertain. For now, get a 486DX2/66 system if you can afford it, and keep at least one option open with a Pentium Overdrive socket, built into the more reputable system boards.
- **Bus:** OS/2 is a 32-bit operating system, and it can certainly benefit, performance-wise, from a 32-bit data path bus. If you can afford IBM's Micro Channel Architecture (MCA), get a PS/2. It has more to recommend to it than being made by the OS/2's developer.

Otherwise (particularly if you are prepared to accept less performance temporarily in order to be able to preserve some of your ISA adapters) get an EISA system. While a Local Bus (LB) slot for video would help graphics performance, with Intel's PCI and VESA specifications competing for standard status, there is some uncertainty as to the best choice.

- **Memory:** The current version of OS/2 installs and runs on as little as 4MB of RAM, but with less than 8MB there will be disk swapping and sluggishness. IBM has been working on decreasing memory requirements in 2.1, but you should plan for at least 12MB and, if you can afford it, go for 16MB. You'll love it. Make sure that the system board can accept at least 32MB of fast (70ns or lower) 4MB SIMMs.
- **Storage:** Disk space fills quickly under OS/2; compression software has been slow to emerge. Swapping to a slow disk will inhibit performance, and become the bottleneck of an otherwise fast system. How much space you need depends, of course, on your specific needs, but you should not bother with less than 200MB, and slower than 15ms.

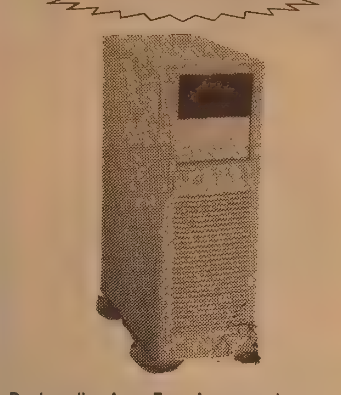
Frequent backups are good policy in general, and crucial in OS/2, but using the same drive is risky—and forget about floppies. A backup device such as a second hard disk, or removable tape or cartridge drive, is highly recommended. This means you need multidrive support, for which SCSI devices have no substitute (up to seven SCSI devices can be daisy-chained). A high-transfer SCSI-2 compliant caching adapter is highly recommended, but make sure that it comes with OS/2 support, either built into OS/2, or provided by an OS/2 driver. For an EISA system, get an EISA-specific adapter.

- **Video:** The higher the resolution, the more screen real estate you get, and the more you will appreciate the Work Place Shell (WPS), OS/2's graphical user interface. But 1024 x 768 is about the maximum resolution that still lets you get away with a 16" multiscan monitor, beyond which monitor prices become prohibitive. With an MCA system, get an XGA-2 video adapter.

With an EISA system, your first priority should be a 32-bit EISA-specific adapter compatible with at least the 8514/A video mode built into OS/2, or offering a better OS/2 driver. Currently there isn't much choice, except ATI's Ultra Graphics Pro (in both EISA and VLB versions), but its 32-bit

Copyright © 1993 by Fabian Pascal. All rights reserved.

SPECIAL



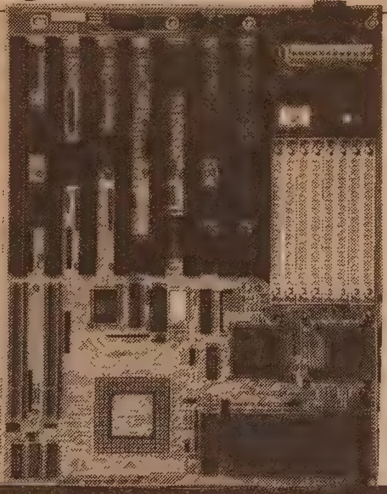
Dual cooling fans, Easy Access swing open side doors, Slide 'n Snap drive rails, 4 exposed and 3 hidden drive bays, 230W UL power supply.

$150

upgrade to 250W UL PS...... ADD $12
upgrade to 300W UL PS...... ADD $25
Medium Size Available Now!..$125

BIG SALE

Lynx's Users: IBM, Intel, NASA, AT&T



PRESENTING LYNX GALAXY 486VL BUS

MADE IN THE USA
FCC CLASS B
ONE BOARD FITS ALL
(Dealers Welcome)

CONTAQ chipset and AMI BIOS
Norton SI: 75.70 @ 33MHz, 107.20 @ 50MHz
Landmark: 160.2 @ 22MHz, over 200 @ 50MHz
100% Compatible w/ DOS, OS/2, XENIX, UNIX, NOVELL NETWARE, Win. NT
0K/128K/256K $105/125/155

LYNX

LYNX VLB	Board & CPU	Basic System	LYNX	Board & CPU	Basic System
486DX2-66/128K	$650	$810	386DX-40/64K	$155	$349
486DX-50/128K	550	710	386DX-33/64K	145	305
486DX2-50/128K	510	670	386SX-25/0K	95	255
486DX-33/128K	435	595	486SX-25/64K	260	420
486SX-25/128K	280	440	486 EISA/VESA	CALL	CALL

Basic system includes: Board & CPU, 1MB RAM, One Teac Floppy, IDE Controller, 101 Enhanced Keyboard, Mini Case w/200W PS.

PC Editor's Choice

PC MAGAZINE EDITOR'S CHOICE

Sept . 1992
Volume 1 Number 6 (U.K.)

Caching + Mirroring EISA Fast SCSI (DC-820)

- Adaptec 1540/1542 compatible
- Hardware Disk Mirroring Support
- Cache expandable to 16MB
- High Speed 32 Bit bus master, burst data transfer up to 33MB/sec
- Fully support SCSI-I & SCSI-II protocols
- Coexists with other SCSI, ESDI or IDE card
- Support up to 8 drives for DOS 5.0
- Support Max. DOS disk capacity of 4.5 GB

$435

VESA Bus IDE CACHE CONTROLLER (DC-680)

- < 0.3 msec Disk Average Seek Time
- Max Data Transfer Rate (VESA BUS to cache) : 20 MB/sec
- Max Data Transfer Rate (Disk to cache) : 5 MB/sec
- Supports up to 4 IDE drives & 2 Floppy drives
- WD 1003 Emulation Mode Support
- >528MB Drive support for DOS & Windows
- Cache expandable to 16MB

$179 (Local Bus)

YOUR NETWORK SOLUTION
Networking Specialists

LTI provides the most reliable Novell Network Design, Cabling, and Installation, Hardware Configuration and System Integration, Back-up Service & Data Recovery PC & Network. When you come to LTI you've made the right choice!

MONTHLY SPECIALS

Full Tower Case w/220W PS 42T	$80
Medium Tower Case w/220W PS	$75
Mini Tower Case w/220W PS	$52
TEAC 1.2MB/1.44MB	$49/43
Keytronic Keyboard (Made in USA)	$34
IDE I/O (2S/1P/1G)	$18
Arche SVGA 14" .28 NI Color Monitor	$289
Touch SVGA 14" Monitor	$239
IBM VGA Color Monitor	$189
Diamond Speed Star 24X	$165
Trident 1MB SVGA Card	$55
Sony CD-ROM Int. 380MB	$325

1 YEAR PARTS /3 YEARS LABOR/LIFETIME TECH SUPPORT LIMITED WARRANTY

EVERYDAY LOW PRICES

CASES & POWER SUPPLIES

DELUXE Full-208GT (2 FANS, Easy Access Side Doors, 4 Exp'd, 3 hid'n, 230W UL)	$152
Mini-104T (4 exp'd, 1 hidden, 200W PS)	52
Med-106T (5 exp'd, 3 hid'n, 200W UL PS)	75
Full 108T (4 exp'd, 7 hid'n, 230W UL PS)	99
Full-42T (4 exp'd, 5 hidden, 220W UL PS)	80
Full-51T (7 exp'd, 1 hidden, 220W UL PS)	95
Mini- V103T (4 Exp'd, 5 Hidden, 220W PS)	70
Desktop- S203D (4Exp'd, 2 Hidden, 200W PS)	75
Desktop- K101D (1Exp'd, 2 Hidden, 100W PS)	70
Desktop- K101D (1Exp'd, 1 Hidden, 60W PS)	70

POWER SUPPLIES

Full PS 230W UL/250W UL/300W UL	$49/59/77
Baby PS 200W /200W UL/230W UL	37/41/45

FLOPPY, HARD, TAPE, & CD-ROM DRIVES

TEAC 1.2MB 5.25"/1.44MB 3.5" Drive	$49/43
120MB/170/200/250	185/220/245/289
Removable IDE Hard Disk Kit	38
COLORADO 120MB/250MB	159/219
SONY CD-ROM (380MB, Int.)	325
NEC CDR 74/84 CD-ROM 280ms, 300KB/s, ext/int	525/495
Media Vision Fusion CD-16	495
NEC Multimedia Upgrade Kit (Int/Ext)	885/985
Sound Blaster Pro Multimedia Kit w/6 CDTitles (Int/Ext)	510/520
Toshiba 3401B Kit 200ms	519

VGA CARDS

MGP/MCGP/VGA	$14/19/36
Diamond Speed Star 24X 1M 16 mil. colors	169
Diamond Stealth VRAM Hi-Colors 1M	219
Diamond Stealth 24-DRAM/24-DRAM VLB	179/189
Diamond Viper	399
Genoa VLB 1MB 16 Mil Colors	109
ATI Graphic Ultra EISA 2MB	575
ATI Graphic Ultra Plus 2 DRAM	315
ATI Graphic Ultra Plus 2 DRAM w/mouse	345
ORCHID Pro IIs Hi-Colors ISA 1MB DRAM	139
ORCHID Fahrenheit 1280 ISA 1 MB VRAM	169
ORCHID Fahrenheit VLB 24 bits 1 MB	175
ACUMOS SVGA 256K/512K	33/44
Trident SVGA 1MB (VRAM)	55

EVERYDAY LOW PRICES

VIDEO DISPLAY MONITORS

Mono 12"/14"	$75/94
ADI MICROSCAN 3E (1024X768 .28 NI)	330
ADI 3E+ Low Rad	370
ADI 4G 15" 1280 SVGA	540
Arche 14" SVGA .28 NI	289
NANAO 9070U/9080i (16" 1024X768 .28)	955
NANAO F550I (17" 1280X1024 .28)	1145
NANAO F560I (17" 1280X1024 .25)	1725
NANAO T660 (20" 1280x1024 .31 NI)	1825
NANAO T660I (20" 1280x1024 .31 NI, Trinitron)	2585
NEC 3FG/4FGE (15" 1024X768 .28)	649/749
NEC 5FG (OEM) (17" 1280X1024 135MHz)	1300
NEC 6FGX (OEM) (21" 1280X1024 135MHz)	2385
SEIKO CMI 1450 (NI)	425
SEIKO CMI 2050 (1024X768 .31 NI)	1545
SONY 1304S (14" 1024X768 .25 NI)	565
SONY 1604S (OEM) (17" 1024X768 .25)	995
SONY GDM 1936 (20" 1280 X1024 .30)	2090
VIEWSONIC 5E/5+	420/525
VIEWSONIC V6E (14" 1024X768 .28)	335
VIEWSONIC V6FS (15" 1024X768 .28)	575
VIEWSONIC V7 (17" 1280X1024 .28)	989
VIEWSONIC V8 (20" 1280X1024 .31)	1559
MGC 15" 1280 NI	420

KEYBOARD, MOUSE & SCANNERS

MaxiSwitch/KeyTronic 101 Keyboard	$35/35
OMNIKEY 101 NI/102/ Ultra	69/79/99
LOGITECH MouseMan Ser/Bus NEW	64/66
LOGITECH TrackMan Ser/Bus /PT	72/79/99
MicroSoft Mouse Ser/Bus	84/89
Handy Mouse	12
Microsoft DOS 5.0/Microsoft Windows 3.1	45/45
Focus FK 9000	72

MODEMS

2400 bps Modem Int/Ext	$39/80
2400 bps Data+9600 bps Send/Recv Fax Int Modem	67
Hi-Speed 14400 Full Function	199
9600 V.32 + MNP + V.42 bps Int/Ext Modem	285/399

CONTROLLERS

DC-600B Cache IDE ISA	$135
DC-680 Cache IDE VLB	179
DC-620 Cache IDE EISA	209
DC-820 Cache SCSI EISA	435
Adaptec 1542/1522	259/159
IDE VLB Add-On	69
AT/IO (2S/1P/1G)	14
IDE 1:1 2HD/2FD Controller W/Cable	14
IDE 1:1 2HD/2FD & 2S/1P/1G W/Cable	18
IDE 1:1 2HD/4FD Controller	45
AT 1:1 MFM 2HD/2FD Controller	45
Serial (RS232) Card/Parallel (Printer) Card	13/14

LOCAL AREA NETWORKS

Ethernet NE-1000/NE-2000 Coaxial	$78/88
Ethernet NE-1000/NE-2000 10-Base T	94/104
ARCNET 8/16 Bit Coaxial Star	41/64
ARCNET 8/16 Bit Twisted Pair	47/74
MAXLANStarter Kit (8 bit/16 bit)	185/199
LANtastic AE-2/AE-3 Starter Kit	479/549
LANtastic AE-2/AE-3 Adapter	219/249

NEW Location

LYNX

STORE HOURS
MON-FRI 9AM-6PM
SAT 10AM-5PM
SUN BY APPT. ONLY
SINCE 1987

LTI Leopard Technology

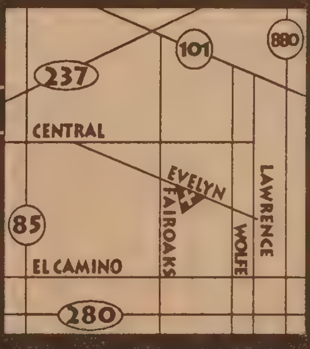
INTERNATIONAL

624 E. EVELYN AVENUE, SUITE A SUNNYVALE, CA 94086

NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS. PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
Prices reflect special discount

CALL FOR PRICES

(408) 481-9288 FAX:(408) 481-0866



drivers for OS/2 are not available as of this writing. If you're on a smaller budget, try one of the adapters based on the S3 graphics accelerator chipset, but make sure it has OS/2 support at higher resolution than VGA.

CHOOSING A COMPATIBLE PLATFORM THAT NOT ONLY SUPPORTS, BUT ALSO ALLOWS USERS TO TAKE FULL ADVANTAGE OF OS/2 IS NOT AS SIMPLE AS THE CHOICE FOR A DOS SYSTEM WAS.

SOFTWARE

For those who want an easier migration in terms of cost and learning curve by keeping some of the software they already have, or taking advantage of the vast amounts of available programs on those platforms, OS/2 offers true multitasking of DOS and Windows applications.

Most DOS applications will run smoothly in the Virtual DOS Machine (VDM), the DOS session emulated by OS/2. But, depending on your hardware, some may require considerable "trial and error" tweaking of a variety of settings, which will baffle the average PC user.

OS/2 2.1 is expected to provide seamless support for Windows 3.1 applications. If there are specific Windows applications you want or need to run, you can take advantage of this capability.

Otherwise, if you can locate, or even wait for, equivalent OS/2 software, consider it. Dealing with two operating environments and graphical interfaces is not that easy, and OS/2's are better.

To take full advantage of OS/2's greater memory, and protected multitasking and multithreading capabilities, software must be written explicitly for that purpose. Because such development is more demanding, the usual vicious cycle—developers wait for more OS/2 users, and users wait for more applications—kicked in with a vengeance. Windows bias in the press only exacerbates this problem. (The discrepancy between the claim that OS/2 does not warrant more coverage because "it does not have enough applications," and the considerable attention—including regular columns—paid to Windows NT, which doesn't even *exist* yet, just about says it all.)

There *is* OS/2 software, although it's not as abundant as DOS and Windows applications, and not as available on store shelves. Last month I mentioned FaxWorks. The DeScribe word processor has been out for a while. Lotus has just released OS/2 versions of 1-2-3 and Freelance, with AmiPro forthcoming. A WordPerfect version

continued on page 246

We Buy Excess Inventory!

WE BUY EVERYTHING... MOTHERBOARDS, VIDEO CARDS, HARD DRIVES, KEYBOARDS, CONTROLLER, MONITORS, RAM, IC'S, TERMINALS, FLOPPY DRIVES, SOFTWARE, ETC.

WE PAY CASH!!

CALL OR FAX YOUR LIST
WE WILL RESPOND IMMEDIATELY

SOFTWARE BLOWOUT

MICROSOFT WORD 5.0 (MAC)	$75
MICROSOFT WORD for WINDOWS 2.0 Competitive Upgrade	$105
MICROSOFT EXCEL 4.0 (MAC)	$99
QUICKEN 2.0 WINDOWS	$30
QUICKEN 4.0 for DOS	$15
SUPERSTORE 2.0	$15
NORTON DESKTOP 2.0 for WINDOWS	$34
AMISH UTILITIES for WINDOWS	$15

Strata Remarketing

(510) 656-9848
FAX (510) 656-9891
46560 Fremont Blvd. #302 Fremont, CA 94538

PC UPGRADES

COMPATIBLES AND BRAND NAMES
COMPLETE PARTS AND LABOR WARRANTY

386 PC UPGRADES STARTING FROM	$299
286 PC UPGRADES STARTING FROM	599
PC XT UPGRADES STARTING FROM	349

SPECIAL VESA UPGRADE

386SX - 486DX-33VLB	$599

• MEMORY • VIDEO • HARD DRIVE • CD-ROM
• MULTI-MEDIA UPGRADES AVAILABLE

PC REPAIRS

REPAIR SERVICES ARE OFFERED FOR PCs, MONITORS, POWER SUPPLIES, AND HARD DRIVE

PC SALES

SPECIAL VESA SYSTEM

486DX-33 VLB SYSTEM WITH 4MB RAM 170MB HD, SVGA MONITOR AND CARD, 2 FLOPPY DRIVES, MINITOWER, MOUSE, KEYBOARD, DOS, & WINDOWS $1499

486DX-50/33 COMPLETE SYSTEMS	$1950/1400
486DLC-33 COMPLETE SYSTEM	1200
386DX-40/33 COMPLETE SYSTEM	1070/1025
SSII CLONES COMPLETE SYSTEM	5995
CAD TURNKEY SYSTEMS	2400

PROTOTYPE SERVICES
PC BOARD DESIGN

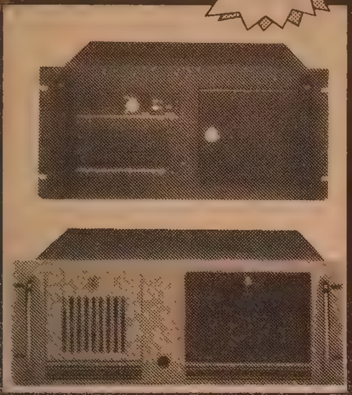
WE OFFER COMPLETE BOARD LEVEL DESIGN AND ASSEMBLY SERVICES. WITH OVER 18 YEARS EXPERIENCE DEYS ENGINEERING BRINGS YOU THE HIGHEST QUALITY TO SUIT YOUR SPECIFICATIONS.

• CIRCUIT DESIGN • PCB LAYOUT • PCB ASSEMBLY • TESTING & CALIBRATION

DEYS ENGINEERING
44380 S. GRIMMER, FREMONT
(510) 770-1969

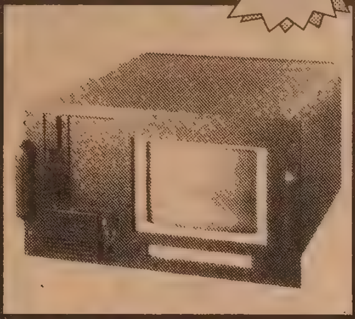
19" RACKMOUNT ENCLOSURE

CALL



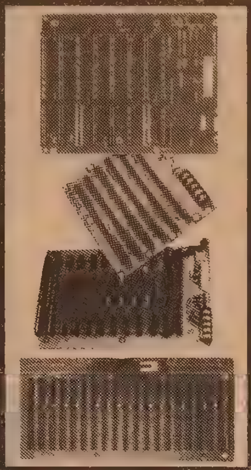
19" RACKMOUNT W/MONITOR

CALL



- 19" Rackmounting
- Integral Monitor
- 10" .28 dot pitch SVGA Color
- 9" Mono-TTL or VGA
- 8 or 14 Slot Passive Backplane
- 8 Slot Motherboard Mounting

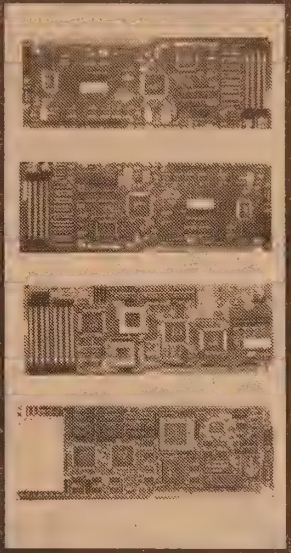
PASSIVE BACKPLANE BOARD



6 SLOT	$53
8 SLOT	$35
12 SLOT	$90
14 SLOT	$94
18 SLOT	$180
20 SLOT	$194

- 14 SLOT SEGMENTED 6,4,4
- 18 SLOT SEGMENTED 5,4,4,5
- 20 SLOT SEGMENTED 5,5,5,5

SINGLE CPU BOARD

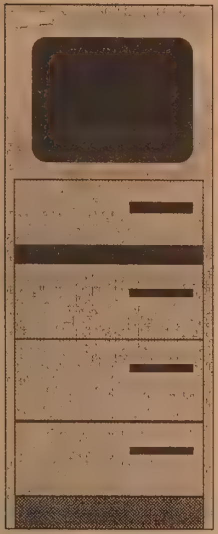


Guaranteed high reliability
100% SMD board.

286C-12 w/CPU	$125
386SXC-16 w/CPU	$220
386SXC-20 w/CPU	$280
386DXC-33 w/CPU	$380
486DXC-33 w/oCPU Upgradable To DX-50, DX2-50/66	$550

Available with AMI & Phoenix BIOS

MULTI-MICRO SYSTEMS CENTRALIZED LAN STATION SYSTEM



MULTI-MICRO SYSTEMS' centralized LAN station systems are a family of rack mount systems that are custom designed and configured to meet your specific connectivity requirements.

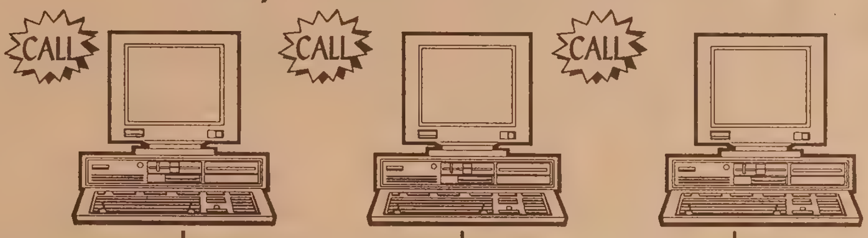
We install and service Network systems. All of our work is guaranteed to meet or exceed your requirements. Call for consultation.

• Call About MMS Custom Lease-to-Own Program for LAN Station System •

1ST RACK (SALES)
19" KEYBOARD DRAWER (IU)
2ND RACK (PURCHASING)
3RD RACK (ACCOUNTING)
4TH RACK (PRODUCTION CONTROL)

UPGRADABLE LAN STATIONS

CALL CALL CALL

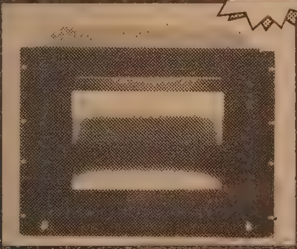


486DXC-33 386DXC-33 286C-12

MMS centralized file-server connects to upgradable Lan stations

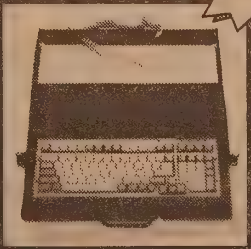
19" RACKMOUNT MONITOR KIT

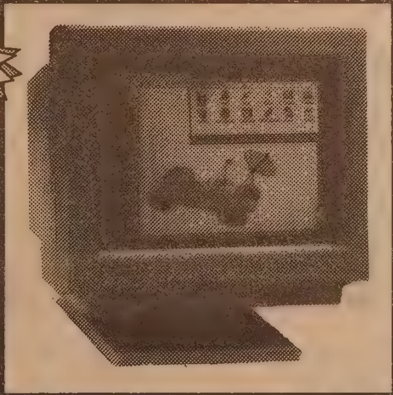
CALL



19" RACKMOUNT KEYBOARD

CALL





9"
SVGA
Mono
Paper White

15"
VGA
FULL
PAGE

19" RACKMOUNT ENCLOSURE

CALL

- 8, 14 & 20 Slot Options
- Dual Power Supplies
- Power Supply Redundancy Option
- 8 Drive Bays
- 8 Fans
- Motherboard or Passive Backplane
- 200-1000 Watt Power Supply
- USA Manufactured

MONITORS

• 9" SVGA Monochrome	$130
• 14" SVGA Interlaced	$260
• 14" SVGA Non-Interlaced	$300
• 15" VGA Mono Full Page	$250

ACT!® CALL

BEST SELLING CONTACT MANAGER SOFTWARE FOR 5 STATION NETWORKS

9" SVGA MONOCHROME MONITOR

- CRT 9" & 90 DEFLECTION
- NON-GLARE, PAPER WHITE, PHOSPHOR
- RES: 1024 X 768, 800 X 640, 720 X 400, 640 X 480
- POWER SUPPLY: 100-240V AUTO SELECTION

14" SVGA MONOCHROME MONITOR

- CRT 14" DIAGONAL NON-GLARE FLAT
- DOT: .28mm
- RES: 1024 X 768 NON-INTERLACE, 800 X 600, 720 X 400, 640 X 480, 640 X 350
- POWER SUPPLY: 120-240V AUTO SELECTION

15" VGA/FULL PAGE MONITOR

(RUNNING WITH NORMAL VGA CARD)

- CRT: 15" DIAGONAL, FLAT DYNAMIC FOCUS, PAPER WHITE
- RES: NON-INTERLACE, AUTO-SELECT VGA (640X480) OR FULL PAGE (640X600) SELF ADJUSTING
- DRIVER SOFTWARE INCLUDED
- SUPPORTS: WINDOWS3.1/3.0 LOTUS 1-2-3 V.3.1, MS WORD V5.5, MS WORKS, PAGEMAKER V4.2/V5.0/V5.1
- POWER SUPPLY: 120-220V AUTO SELECTION

Multi-Micro systems

TEL: (408) 456-0333
(800)-875-0333
FAX: (408) 456-0366

Terms & Conditions
Prices subject to change without notice. Not responsible for typos or errors. Prices based on cash. Please ask about products not listed in this advertisement. 1 year warranty on parts.

62 Bonaventura Drive • San Jose, CA 95134 • Mon-Fri: 9am-6pm

The End Of BBSing On Prodigy?

Drastic Changes In Low-Cost Leader's Pricing Structure Distress Users, Cheer Competitors

BY KATHLEEN CREIGHTON

Just as the last controversy quieted and Prodigy members thought it was safe to come out of the woodwork and back to their BBS forums, Prodigy CEO Ross Glatzer announced a new pricing structure for Prodigy which, if implemented, will have the effect of ceasing (or at least sharply curtailing) BBS activity.

The pricing plan, announced April 16, departs from Prodigy's strategy of flat-fee membership. According to Glatzer, July 1 will bring these two new pricing plans:

"The Prodigy Value Plan: For $14.95 a month, your household will have flat-rate use of nearly all our hundreds of features (the "Core") with no timed charges, plus 30 private messages and two hours' use of newly designated "Plus" features—most bulletin boards, Quote Check and Quote Track, Company News, and Easy Sabre.

"After two hours' use of Plus features in your household each month, additional hours cost as little as $3.60 an hour for all hours if you use them more than 6 hours. (If you use Plus features 3–6 hours, all hours cost $4.20; less than 3 hours, they're $4.80 each.)

"There's no charge for the Prodigy Exchange bulletin board [roughly equivalent to a customer service area]. Fees for bulletin boards within Custom Choices will continue to vary. Based on usage data, we expect the Value Plan to be the best choice for most members. We've found that most Prodigy member families do not exceed two hours' use of Plus features.

"The Alternate Plan: For a monthly fee of $7.95, your household can have two hours' use of Core and Plus features combined. No free private messages are included at this low rate—each costs 25 cents. After two hours, all use of Core or Plus features is chargeable at the same hourly rates of $3.60–4.80 per hour (6–8 cents/minute) as in the Value Plan.

> *Prodigy claims that its offline reader will be available for all platforms, but has not rebutted the claim that it is intentionally driving BBS users away.*

"There are no timed charges to view commercial advertising; use messaging, PCFN, online banks, and BillPay USA; or for informational features about the Prodigy service, including Prodigy Central, Prodigy Exchange, and Membership Services online. The Alternate Plan is best for members who just like to 'check in' on the service from time to time and for those who use only certain Plus features and are less interested in the hundreds of Core features available at a flat rate in the Value Plan."

PROMISES, ANNOUNCEMENTS, AND REACTIONS

It is true of all online services that an extraordinary number of users hold and pay for accounts that they don't use at all, or use infrequently, and Prodigy certainly has its share of financial donors. What one sees in terms of BBS activity on Prodigy is the work of a minority of users. But according to Berkeley physician Ken Matsumura, chair of the ad hoc Prodigy User Group, the BBS users are the enthusiastic supporters of Prodigy, more likely to encourage others to use the service.

Indeed, the positive changes regarding the BBSes in the last year have softened some of the criticism of the service. Now many BBS users, facing monthly bills of $100–$200 and up per month, are feeling regarded as Prodigy's cash cows.

In addition, it could be considered very risky to implement a pricing system that isn't obvious at first glance, even for those potential users who wouldn't be attracted to the BBSes. On cursory reading, the explanation of the pricing plans simply looks expensive for everyone, unlike the obvious and straightforward flat fee for which Prodigy is so well known.

Glatzer also announced the availability of upload/download tools, ostensibly to mitigate online charges for BBS and financial services users; however, it is not clear whether or not individual messages will have to be marked for inclusion in a download batch, or if users will be able to download whole topics without individual message selection.

continued on page 186

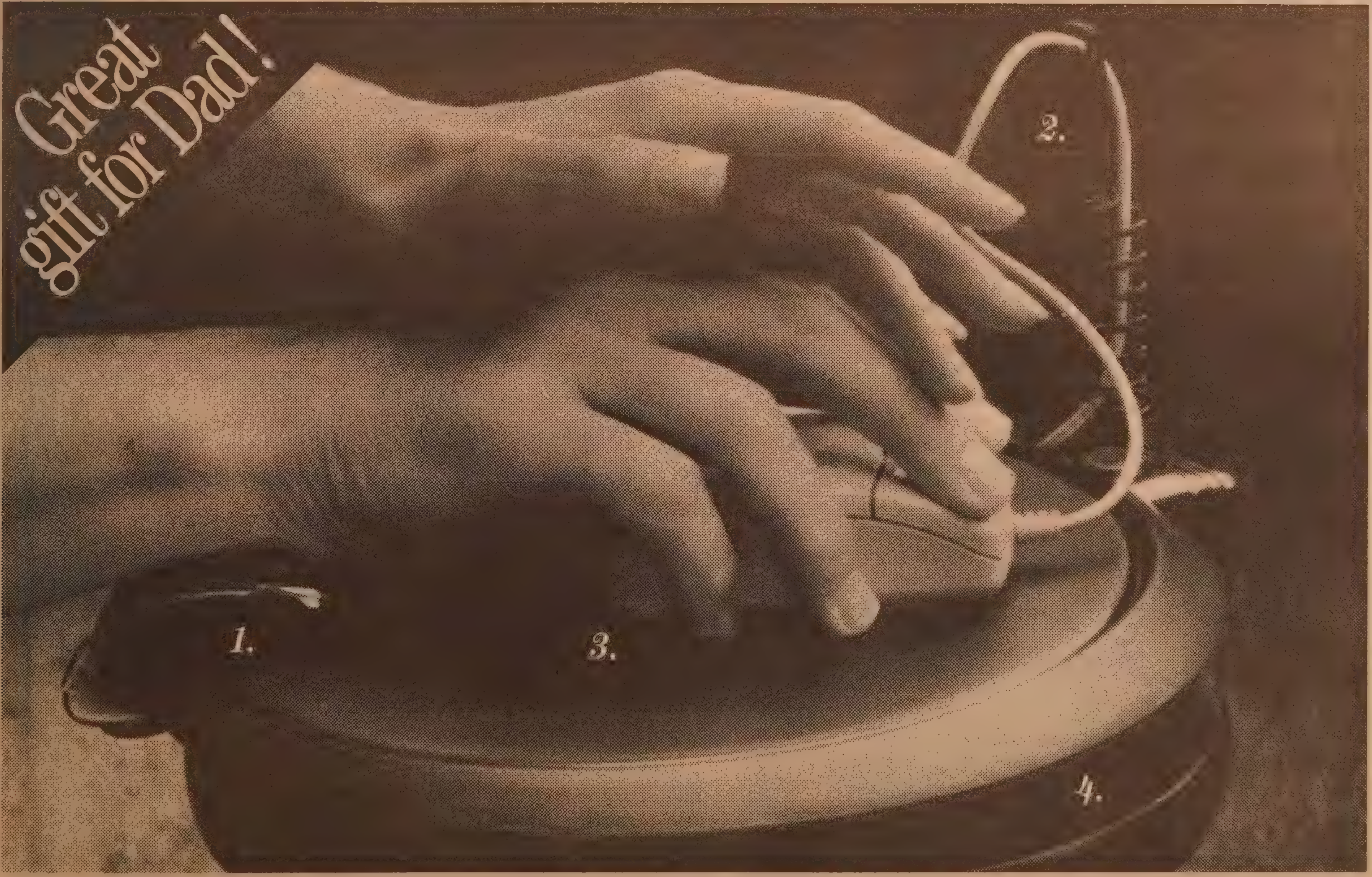
Copyright © 1993 by Kathleen Creighton. All rights reserved.

We'll take care of your hand while your mind's away at work.

We'll also take care of your wrist. And your forearm, shoulder and neck muscles. And the nerves and ligaments in your carpal tunnel. This is no mere mouse pad you're looking at. It's the new Forminco Mouse Arena™; one of the most important new computing accessories ever. The fully adjustable glove leather palm rest *(1)* carries the weight of your forearm, taking musculoskeletal stress off the elbow, shoulder and neck. That palm rest also angles your wrist properly to help prevent Carpal Tunnel Syndrome; a potentially serious problem that affects or concerns many computer users. The Mouse Arena even makes you a better mouser. The cord control system *(2)* lets you forget cord tangles. The Tyron™ tracking system *(3)* keeps your mouse accurate and clean. And *seven* separate feet *(4)* keep your Mouse Arena in place on any surface. So get a Mouse Arena… and take care.

FORMINCO

The Mouse Arena™ is available from the IBM Order Center
(1-800-3-IBM-OS2) and other fine dealers.



BUY DIRECT FROM FACTORY $AVE

Pixel USA Computer (408) 929-7218

MOTHERBOARD w/CPU

Opti 386sx40MHz w/ 16KB Cache	$115
Opti 386DX-40MHz w/ 128KB Cache	$138
486sx25MHz w/ 8KB Cache	$208
486sx33MHz w/ 64KB Cache	$289
486DLC-33MHz w/ 64KB + Math Co. (Cyrix CPU)	$238
486DX-33 w/ 64KB (Intel CPU)	$368
486DX2-50 w/ 64KB	$470
486DX-50MHz w/ 128KB	$508
486DX2-66MHz w/ 64KB	$583
Vesa Local Bus 386DX-40 w/ 128KB	$158
Vesa Local Bus 486DX-33 w/ 128KB	$398
Vesa Local Bus 486DX2-50MHz w/ 128KB	$508
Vesa Local Bus 486DX2-66MHz w/ 128KB	$608
IBM VLB 486SLC2-50MHz w/ 64KB	$368
Orchid SuperBoard VLB 486DX-33 w/ 256KB	$498
Orchid SuperBoard VLB 486DX2-50 w/ 256Kb	$608
Orchid SuperBoard VLB 486DX2-66 w/ 256KB	$728
AMI Super Voyager VLB 486DX-33 w/ 256KB	$738
AMI Super Voyager VLB 486DX2-50 w/ 256KB	$848
AMI Super Voyager VLB 486DX-50 w/ 256KB	$888
AMI Super Voyager VLB 486DX2-66 w/ 256KB	$968
SIS VLB 486DX-33 w/ 256KB w/ ZIF Socket	$448
SIS VLB 486DX-50 w/ 256KB w/ ZIP Socket	$588
SIS VLB 486DX2-66 w/ 256KB w/ ZIF Socket.	$673
EISA Vesa Local Bus	$Call
Other	$Call

INTERFACE CARDS

MFM Controller 2HD & 2FD	$25
IDE Controller 2HD & 2FD (2s, 1p, 1g)	$15
IDE Cache Controller w/ 512KB < 0.3ms	$118
IDE Promise 2HD & 2FD (2s, 1p) (VLB)	$39
IDE Orchid 2HD & 2FD (2s, 1p, 1g) (VLB)	$65
IDE DTC 2HD & 2FD (2s, 1p, 1g) (VLB)	$78
IDE Promise 4030 Cache 0K-16MB (VLB)	$178
SCSI DTC 3280A 7HD & 2FD (16-bit)	$95
SCSI Adaptec 1522BK (16-bit)	$148
SCSI Adaptec 1542CK Bus Master (16-bit)	$258
SCSI Adaptec 1742 EISA Kit, (32-bit)	$418
SCSI UltraStor 34F Cache Controller (VLB)	$295
Other	$Call

MONITORS

15"

14" (1024x768) .39 Interlaced	$198
14" (1024x768) .28 Interlaced	$238
14" (1024x768) .28 Non-Interlaced	$263
14" Acer (1024x768) .28 Non-Interlaced (34T)	$318
14" ViewSonic 6E (1024x768) .28 NI (60Hz)	$318
14" ADI 3E+ (1024x768) .28 NI (72Hz)	$338
14" Sony 1304S (1024x768) .26 NI (60Hz)	$528
14" Sony 1430S (1024x768) .26 NI (70Hz)	$585
15" SAMPO KDM-1566 (1280x1024) .28 NI	$448
15" ADI 4FG Low Radiation (1280x1024) .28 NI	$478
15" NEC 3FGe (1024x768) .28 NI (60Hz)	$598
15" NEC 4FGe (1024x768) .28 NI (72Hz)	$698
15" ViewSonic 15" (1280x1024) .28 NI (72Hz)	$628
15" Nanao 340IW Flatscreen (1280x1024) .28 NI	$685
17" Sampo KDM-1766 (1280x1024) .31 NI	$725
17" Sony 1604s (1024x768) .25 NI	$938
17" ViewSonic 7 (1280x1024) .28 NI	$948
17" Nanao F550IW (1280x1024) .28 NI	$1125
20" Other	$Call

SVGA CARD

ORCHID

MGP Card	$15
Trident Super VGA Card w/ 512Kb	$34
Trident Super VGA Card w/ 1Mb	$54
TsengLab ET-4000 w/ 1Mb (Hi-Color)	$68
Cirrus Logic Windows Accelerator w/ 1Mb	$58
S3 Windows Accelerator w/ 1Mb (V-ram)	$108
GTK VLB Windows Accelerator w/. 1Mb	$85
Western Digital VLB Windows Accelerator w/ 1Mb	$85
Spider VLB Windows Accelerator w/ 1Mb	$98
ATI Graphic Ultra Pro VLB w/ 2Mb V-RAM	$378
Diamond Speed Star 24 True Color w/ 1Mb	$118
Diamond Stealth 24 w/ 1Mb	$138
Diamond Speed Star Pro VLB w/ 1Mb	$118
Diamond Stealth 24 VLB w/ 1Mb	$165
Diamond Viper VLB w/ 2Mb	$378
Orchid Fahrenheit 1280 Plus w/ 1Mb	$138
Orchid Fahrenheit 1280 VLB w/ 1Mb	$165
Orchid Celsius VLB w/ 2Mb (Vram)	$298
Orchid P9000 VLB w/ 3Mb	$345

HARD DISK & FLOPPY DRIVE

CONNER

84Mb 19ms IDE (CP30084)	$160
170Mb 17ms IDE (CP30174E)	$218

FUJITSU

520MB 12ms SCSI-II (M2624FA) 3.5"	$768
1.2GB 14ms SCSI (M2266SA) FH	$1085
1.2GB 10ms SCSI (M2694SA) 3.5"	$Call

Maxtor

130MB 15ms IDE (Maxtor 7120A) 3.5x1"	$188
213MB 15ms IDE (Maxtor 7213A) 3.5x1"	$248
245MB 15ms IDE (Maxtor 7245A)	$278
340MB 15ms IDE (Maxtor LXT340A)	$348
540MB 8.5ms SCSI-2 (MXT-540) 3.5x1"	$858
1.2GB 8.5ms SCSI-2 (MXT-1240) 3.5x1"	$1268

Quantum

245MB Fast IDE 256Kb Cache (LPS240A) 3.5x1"	$298
525MB Fast SCSI (LPS525S) 3.5x1"	$888
Other	$Call

WESTERN DIGITAL

213MB IDE 14ms (WD2200)	$248
255MB IDE 13ms (WD2250)	$288
340MB IDE 13ms (WD2340)	$338
420MB IDE 12ms (WD2420)	$Best Prices Call

TEAC

1.2Mb Floppy Drive (TEAC)	$55
1.44Mb Floppy Drive (TEAC)	$48
Other	$Call

Sound Blaster Deluxe $88.00

SOUND BLASTER

Sound Blaster Deluxe (New Version)	$88
Sound Blaster Pro Deluxe (New Version)	$128
Sound Blaster Pro 16 AST (New Version)	$225
Creative Lab Multi Media Upgrade Kit	$Call

TAPE BACK-UP

Colorado 120Mb Tape Back-up	$145
Colorado 250Mb Tape Back-up	$198

KEYBOARDS

Mitsumi 101 Enhanced	$15.95
Keytronic 101 Keys Enhanced	$29
NMB 101 Keys Enhanced Click	$45
Focus 9000 CLick w/ Calculator	$65
Northgate Ultra	$95
QTronic 101 Keys Enhanced w/ TrackBall	$65
Other	$Call

MODEMS

Modem 2400 or Modem 2400 & Fax 9600	$28 / $48
Real Hayes 2400 Baud Rate (External)	$38
GVC Modem 14.400 & Fax 14,400 (Internal)	$158
GVC Modem 14.400 & Fax 14,400 (external)	$188
US Robotics Modem 14,400 & Fax 14,400 (Ext)	$205

CASES

Mini Desktop Case + Power Supply 200W	$55
Mini Tower Case + Power Supply 200W	$55
Medium Tower Case + Power Supply 230W	$85
Full Size Tower Case + Power Supply 250W	$98
Black Tower	$Call

MICE

Real Microsoft Mouse Serial $45.00

Microsoft Mouse Conpatible (3-Buttons)	$9.95
Logitech 2 Buttons Mouse (High Resolution)	$15.95
Logictech Mouse Man Serial	$39.95
Real Microsoft Bus Mouse	$75.95

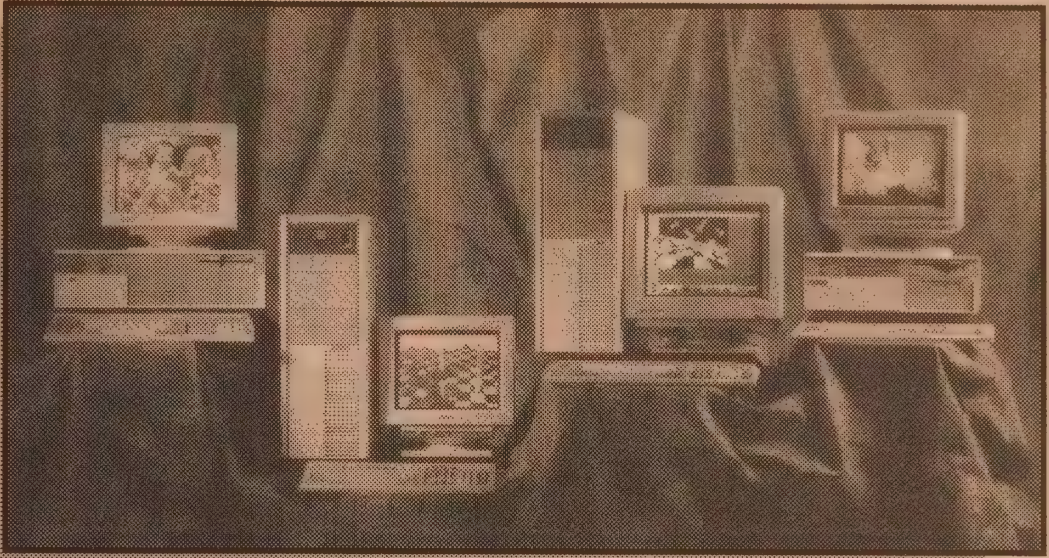
ACCESSORIES

Cpu cooling kit w/ heatsink & fan	$15.95
Full Version MS-DOS 6.0 (Real Microsoft)	$44.95
Microsoft Windows 3.1 (Real Microsoft)	$44.95
ULSI Math Coprocessor 387-40MHz	$75
Mouse Pad	$1.95
Power Center (Surge Protector)	$17.95
AT I/O 2s, 1p, 1g	$15
AT I/O 2s, 1p, 1g (2 Serial 16,550)	$35
Printer Cable 6"	$2.95
Other	$Call

CD ROM Drives

Mitsumi CD-ROM w/ Controller (350ms)	$188
PanaSonic CD-ROM w/ Controller (350ms)	$228
TEXEL DM-3024 Fast SCSI Internal (265ms)	$348
NEC CD-r-84-1 SCSI-II 256K Internal (280ms)	$445
Toshiba SM-3401B SCSI 256K Internal (200ms)	$445

We Will Beat Any Advertised Price



ORCHID 486 VESA Local Bus

- ★ **Orchid SuperBoard w/ Intel CPU**
- ★ **256KB Cache**
- ★ **4Mb Ram** installed expandable to 32Mb
- ★ IDE Controller 2HD & 2FD w/ 2s, 1p, 1g Port
- ★ Floppy Drive **1.2Mb & 1.44Mb**
- ★ **Hard Disk 130Mb** IDE 15ms (Maxtor 7120A)
- ★ **Orchid Fahrenheit** 1280 1Mb expandable to 2Mb **(Vesa Local Bus)**
- ★ **14" Super VGA Color** Monitor (1024x768) **.28 Non-Interlaced**
- ★ 101 Keys Enhanced Keyboard
- ★ Mini Tower Case w/ 200 Watts Power Supply
- ★ **FREE** Real Microsoft Mouse Serial

486DX2-66	$1698
486DX-50	$1608
486DX2-50	$1578
486DX-33	$1468

486 Series VESA Local Bus

- ★ MotherBoard w/ **Intel CPU**
- ★ 128K Cache
- ★ **4Mb Ram** installed expandable to 32Mb
- ★ IDE Controller 2HD & 2FD w/ 2s, 1p, 1g Port
- ★ Floppy Drive **1.2Mb & 1.44Mb**
- ★ **Hard Disk 130Mb** IDE 15ms (Maxtor 7120A)
- ★ Windows Accelerator True Color 1Mb **(Vesa Local Bus)**
- ★ 14" Super VGA Color Monitor (1024x768)
- ★ 101 Keys Enhanced Keyboard
- ★ Mini Tower Case w/ 200 Watts Power Supply
- ★ **FREE** Real Microsoft Mouse Serial

486DX2-66	$1458
486DX-50	$1388
486DX2-50	$1338
486DX-33	$1228

486 Series ISA Bus

- ★ MotherBoard w/ **Intel CPU**
- ★ 64K Cache
- ★ **4Mb Ram** installed expandable to 32Mb
- ★ IDE Controller 2HD & 2FD w/ 2s, 1p, 1g Port
- ★ Floppy Drive **1.2Mb & 1.44Mb**
- ★ **Hard Disk 130Mb** IDE 15ms (Maxtor 7120A)
- ★ Trident 9000 Super VGA Card 512KB (16-bit)
- ★ 14" Super VGA Color Monitor (1024x768)
- ★ 101 Keys Enhanced Keyboard
- ★ Mini Tower Case w/ 200 Watts Power Supply
- ★ **FREE** Real Microsoft Mouse Serial

486DX2-66	$1378
486DX-50	$1298
486DX2-50	$1248
486DX-33	$1138

486 & 386 ISA Bus

- ★ MotherBoard w/ CPU
- ★ 64K Cache
- ★ **4Mb Ram** installed expandable to 32Mb
- ★ IDE Controller 2HD & 2FD w/ 2s, 1p, 1g Port
- ★ Floppy Drive **1.2Mb & 1.44Mb**
- ★ **Hard Disk 130Mb** IDE 15ms (Maxtor 7120A)
- ★ Trident 9000 Super VGA Card 512KB (16-bit)
- ★ 14" Super VGA Color Monitor (1024x768)
- ★ 101 Keys Enhanced Keyboard
- ★ Mini Tower Case w/ 200 Watts Power Supply
- ★ **FREE** Real Microsoft Mouse Serial

486SX-33	$1068
486SX-25 w/ 8Kb Cache	$978
486DLC-33 w/ Math Coprocessor	$998
386DX-40	$898

One Year Warranty Parts & Labor On Systems

- ☐ ***Customize Configuration Available***
- ☐ ***Financing Available***
- ☐ ***24 Hours Turn-Around Time On Service***
- ☐ ***All Systems Are Burned-In and Tested for 72 Hours***

Office Hours: Mon - Fri : 9:30 am - 7:00 pm · Sat.: 10:00 am - 6:00 pm

Price, term, availability subject to change without notice. Not responsible for typos.

Call Pixel USA BBS, 929-6981, 8N1, 4 lines, FREE access.

1937 Tully Road • San Jose, CA 95122

SAVE 3% ON CASH PURCHASE

VISA

(408) 929-7218

Fax: (408) 929-7244

MasterCard

PIXEL U.S.A.

Springtime For Viruses

How To Survive INIT-M

BY DAVID MORGENSTERN

BMUG

This month we'll get the latest news on the fight against Macintosh viruses. There's an old saying: Your health comes first—you can always hang yourself later. This also holds true for computers. Keep the viruses away from your desktop, since you want to have the fun of screwing things up on your lonesome!

VIRUS BLOOMS IN SPRINGTIME

Unfortunately, Macintosh users recently were treated to a rash of viruses. We can only imagine that the young crackers (hacking shouldn't have a negative connotation, so "cracker" is now a preferred appellation for naughty anti-social codemeisters) have been twiddling their thumbs all winter, bored stiff and stir-crazy, and writing virus code for lack of anything better to do, waiting for baseball season. Now they will be out at the ballpark, eating hot dogs, catching fly balls—and programming new viruses on their PowerBooks.

Governmental Economist Virus:

NOTHING WORKS, BUT ALL YOUR DIAGNOSTIC SOFTWARE SAYS EVERYTHING IS FINE.

The latest virus threat is called INIT-M. It was discovered at Dartmouth College in April. This malicious virus is designed to trigger on any Friday the 13th (one will occur in August), and will cause serious damage to the data on your hard disk. The "M" might be a reference to the Michelangelo virus found in the DOS world, which is also a date-related virus.

INIT-M works like a food processor, mixing everything on your Mac together into a silicon gazpacho. It's near impossible to pull anything off in an easy manner. All folder and file names are changed to random, eight-character strings. File types and creators are randomized, which breaks the connection between applications and their documents. The dates are also shifted to Jan. 1, 1904, so there's no clue as to the contents of the file. Sometimes, a single file on the drive will be renamed "Virus MindCrime." This is one virus with an attitude problem!

If you're behind the times in the systemware department, you're safe from INIT-M, since it only spreads and operates under System 7. It's harmless under System 6. Disinfectant 3.2, the freeware anti-virus software, does this virus one better, and works under System 6.0x and System 7. It deals with this menace, and all other known Macintosh viruses. The latest version of Disinfectant is always available on the BMUG Utilities V1 disk, available from the BMUG office.

The other April virus, INIT-17, was discovered in New Brunswick, Canada. Although INIT-17 fools around with your System and applications files, the most obvious sign of infection is an alert message that says, "From the depths of Cyberspace." If you're not looking for this message (or not paying attention at boot time) you can easily miss it, and after the message has been displayed once, it never shows up again.

The virus itself does not perform any overtly malicious action, but the virus code that modifies your files contains several programming bugs. Macs using a 68000 processor (Mac Plus, SE, and Classic to name a few) may crash when infected applications are run.

I noticed that the warnings on the illegality of writing and spreading computer viruses have been added to the handouts new users receive when they register for online accounts. They are very prominently displayed in a number of university computer department offices. Writing and releasing these viruses were once viewed as simple acts of vandalism, but now they are also a violation of many state and federal laws.

The Internet announcement of new virus strains includes a request for users to be on the lookout for virus authors, an America's Most Computer Wanted. "If you have information concerning the author of this or any other computer virus, please contact any of your anti-virus program providers." They remind us that several virus authors have been apprehended thanks to the efforts of the Mac user community, and have been convicted for their crimes. Unfortunately, the "several" virus coders were a couple of young college students who wrote a number of different viruses last year. They went around campus bragging about their mighty deeds, were picked up, and busted. Definitely not the stuff of suspenseful detective thriller movies of the week.

THE LIGHTER SIDE OF COMPUTER VIRUSES

I thought you might appreciate a few of the joke viruses that recently made their way around the BBS:

- **Airline Virus:** You're in Dallas, but your data is in Singapore.
- **Bureaucratic Virus:** Divides your hard disk into hundreds of little units, each of which does practically nothing, but all of which claim to be the most important part of the computer.
- **Congressional Virus:** Runs every program on the hard drive simultaneously, but doesn't allow the user to accomplish anything.
- **Freudian Virus:** Your computer becomes obsessed with marrying its own motherboard.
- **Governmental Economist Virus:** Nothing works, but all your diagnostic software says everything is fine.
- **Health Care Virus:** Tests your system for a day, finds nothing wrong, and sends you a bill for $4500.
- **Imelda Marcos Virus:** Sings you a song (slightly off-key) on boot up, then subtracts money from your Quicken account,

Copyright © 1993 by David Morgenstern. All rights reserved.

continued on page 123

BMUG's Choice for Macintosh Specialty Store

MAC℠

Modern Accessories for Computers
Since 1985

800-BUY-A-MAC	Order Line for US & CA (Toll Free!)
(510) 644-0500	General Number / Sales Department
(510) 549-8785	Macintosh Repairs
(510) 644-0584	Order by Fax

2156A University Avenue, Berkeley, CA 94704

Rental, Lease or Purchase of Macintosh

Store Hours
10:00 a.m. -- 6:00 p.m.
MON -- SAT

ATM

TOP 10 Store in the Bay Area ... San Francisco Examiner Reader Poll

Modem

PowerPort Gold for PowerBook	$399
PB DataLink w/ Voice FaxModem	$499
Supra 2400 Baud Modem W/ Cable	$99
Supra 24/96 FaxModem W/ Microphone	$199
Supra FaxModem v.32bis 14,400	$359
Teleport Gold v.32bis 14,400	$459
US Robotics Mac&Fax 14,400	$279

Printer

NEC SilentWriter Model 95 **$1149***
- True 300 dpi Adobe PostScript II Printer
- 8000-Page Toner & Cable Included

*After $250 Rebate, Good Until June 30, 93

Canon 10ex/Power Print Bundle **$439**
- 360 dpi, Canon Bubble Jet Printer
- Compact, Portable--Perfect Powerbook Companion

StyleWriter II, w/ Cable, *In Stock* **$339**

Memory Upgrade

1 Meg Simms, 100/120ns	$39
1 Meg Simms, 80ns	$49
2 Meg Simms, 80ns	$79
4 Meg Simms, 80ns	$159
4 Meg Simms, Centris, Quadra 800	$169
6 Meg Board, PowerBook	$329
4 to 8 Meg Board, PowerBook Duo	Call
4 to 10 Meg Board, PowerBook 180	Call

Mass Micro

Free 3-Year Warranty

DataPak Removable 44, W/1 Cartridge	$539
DataPak Removable 44, W/2 Cartridge	$589
DataPak Removable 88c	$695

- New Model, Read & Write44 & 88MB Format

Scanner

UMAX 600dpi Color Scanner **$1195**
- 24 Bit Photo-Realistic Color / 256 Gray-Scale
- Best Rated Scanner by MacUser Magazine
- Includes Full Version PhotoShop 2.0 *Free*
- Amazing and Affordable 600 dpi Resolution

UMAX 800dpi Color Scanner	$1395
UMAX 1200dpi Color Scanner	$3195
UMAX Transparency Adaptor	$749
Agfa Arcus Plus 1200dpi Scanner	$3395

- 24 Bit Photo-Realistic Color / 256 Gray-Scale
- Professional 1200dpi Resolution
- Come In For a Test Run

Radius

Radius Precision Color Pivot **$999**
- Works on Centris 610, 650, Quadra 800 & 950

Radius Pivot **$795**
- Crisp, Clear Full Page Viewing
- Portrait and Landscape Views

Radius Precision Color 24XP **$509**
- 24 Bit Accelerated Card for 16" and 14" Monitors

Radius Color GX Card **$399**
- 24 Bit Accelerated Card for 14" Monitors

CLEARANCE

20 MB HD, Battery Operated Ext. Case	$149
Abaton Color Flat-Bed Scanner	$695
Apple LaserWriter IINTX *as low as*	$949
DeskWriter	$249
ImageWriter II	$179
Microsoft PowerPoint 2.1	$149
Microsoft Works 2.0	$99
Sigma Design LaserView 19" w/ Card	$999
Video Spigot, IIsi w/ Premiere	$279

M.A.C. & New Horizon Bring You Free Training with Any Mac Purchase $225 Value Free!!!

PowerBook Upgrade

80 MB HD*	$349
120 MB HD*	$479
213 MB HD*	$679
PowerPort Gold	$399
Full Cycle Charger	$139

*Upgrade/Swap Price
Labor Charge Extra

New
In Stock

PwerBook 180
4MB/120HD ***$3799***

Mac Color Classic 4MB/80HD	**$1199**
Mac LCIII 4MB/160HD, *NEW*	**$1395**
Mac IIvx 5MB/80HD, *In Stock*	$1599
Mac Centris 610 4MB/80HD	**$1479**
Mac Centris 650 8MB/230HD	**$3249**
Mac Centris 650 8MB/230HD/CD	**$3579**
Mac Quadra 800 8MB/230HD	**$3999**
Mac Quadra 950 8MB, *In Stock*	**$4595**
PB 160 4MB/80HD, In Stock	$2499
PB 165C 4MB/80HD, *Great Price*	$2669
PB 170 4MB/40HD/Fax, *New*	$2395
PB Duo 230 4MB/120HD, *In Stock*	$2379
PowerBook Duo Dock, *In Stock*	$999
Apple CD 300, In Stock	$559
Sony 1320 14" Trinitron, LCIII, Centris	$399

Mac Trade-In

SAVE on SALES TAX

- We Buy or Trade Any Macintosh CPU (Mac Plus minimum) & Peripherals
- Save on Sales Tax - Pay Tax on the Difference to the Trade in

Hard Disk Price Break

Prices Good w/ Ad Only

†External Unit Add $90 ea.

Quantum ELS 42MB HD	$209†	Apple 40MB Battery Ext HD	$269
Quantum ELS 85MB HD	$249†	Apple 500MB HD	$899
Quantum ELS 170MB HD	$379†	Fujitsu 520MB HD	$999†
Quantum LPS 240MB HD	$449†	Toshiba 1.2 Gig HD	$1499†

Macintosh Rentals

Security Deposit Required

Mac SE	Mac SE/30	Mac Plus	Mac IIsi 5/80
4MB/40HD	4MB/40HD	2MB/20HD	13" Color
$69 Monthly	**$99** Monthly	**$59** Monthly	**$179** Monthly

Macintosh Lease To Own

Mac Centris 650 8MB/230HD	**$115/Mo**
Mac Quadra 800 8MB/230HD	**$142/Mo**
Mac Quadra 950 8MB	**$163/Mo**
Apple 14" Color Display	**$19/Mo**
Apple 16" Color Display	**$46/Mo**
NEC Silentwriter 95	**$41/Mo**
LaserWriter Pro 600, 8MB RAM	**$71/Mo**
LaserWriter Pro 630, 8MB RAM	**$89/Mo**
SuperMac 20" Multimode Trinitron	**$89/Mo**
SuperMac 21" Platnum Monitor	**$39/Mo**
Thunder 24 Video Board--*Fastest 24 Bit*	**$85/Mo**

Lease payment based on 36Mo/$1 Program, Business Lease Only

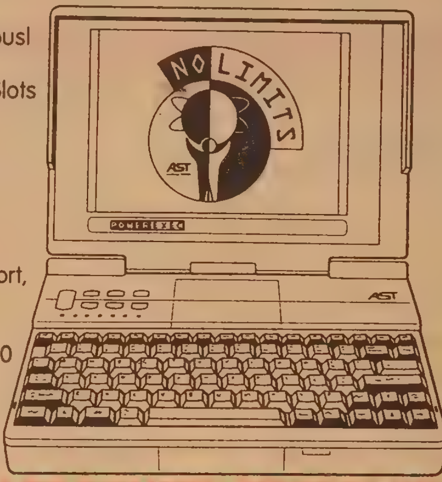
Prices Advertised Are for MicroTimes Readers Only. Please Mention This Ad When You Call or Visit Us.

This Ad Expires June 28, 1993

COMPUTER WERX
ONE STEP AHEAD

HOT

STANDARD FEATURES:
- 4 MB of RAM
- 3.5" 1.44 MB Floppy
- 2.5" Removable Hard Disk
- LCD/External Monitor Simultaneousl Display
- Two PCMCIA, Type II Expansion Slots
- Power Pack NIMH Battery Pack
- Flash BIOS
- 82-Key Keyboard, 12 Dedicated Function Keys, 3mm Travel
- 1 Serial/1 Enhanced Parallel/1 Mouse/1 Ext. Monitor
- One Expansion Port/For Power Port, Easy Port
- Up to 6.5 Hours of Battery Life
- Available with 60, 80, 120 and 160 MB Hard Drive
- MS-DOS 5.0
- One Year Limited Warranty



POWER EXEC 3/25SL Includes:
*386SL, 25 MHz Processor
*64KB RAM Cache
*4 MB RAM Exp to 20 MB (5 volt)

POWER EXEC 4/25SL Includes:
*486SL, 3.3 volts, 25 MHz Processor
*8KB Internal Cache
*4 MB RAM Exp to 32 (3.3 volt)

POWER EXEC Monochrome
*CCFT Sidelit Film Compensated Supertwist
*64 Gray Scales

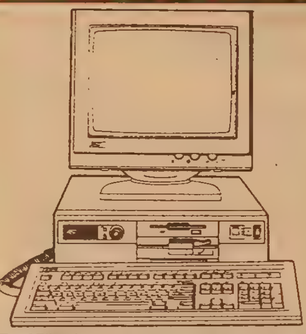
POWER EXEC Color
*Passive F_STN Color Display
*256 Colors

POWER EXEC Color Plus
*Active-Matrix Color Display
*256 Colors

ASK US ABOUT AST POWER EXECCARE PLUS PROGRAM...

MORE REASONS TO BUY AST

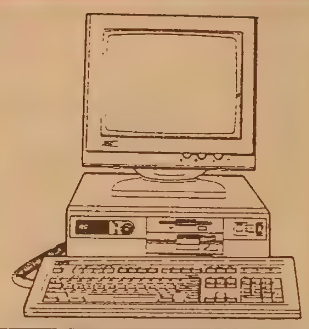
-Novell Certified, Novell Labs Tested and Approved
-Runs OS/2, UNIX, DOS NETWARE and ZENIX
-Customers Satisfaction Guaranteed
-Expert Technical Support
-Standardized by Most Corporate Companies
-Expandable, Upgradable
-More Features,
-Performance, Power, Reliability and Compatibility for LESS MONEY!



AST POWER PREMIUM II 386 DX/25

+ ISA MACHINE
+ INTEL 386 DX/25 MHz
+ 3.5" FLOPPY, NO HD
+ 2 MB OF RAM
+ 16 KB 0-WAIT CACHE
+ INTEGRATED SVGA
+ AST 101 KEYBOARD
+ 2 SERIAL/1 PARALLEL/ MOUSE PORT
+ ONE YEAR WARRANTY

$750
LIMITED QTS. AVAILABLE



AST POWER PREMIUM 386 DX/33

+ EISA MACHINE
+ INTEL 386 DX/33 MHz
+ 3.5" FLOPPY, NO HD
+ 4 MB OF RAM
+ 8 KB 0-WAIT CACHE
+ INTEGRATED SVGA
+ AST 101 KEYBOARD
+ 2 SERIAL/1 PARALLEL/ MOUSE PORT
+ ONE YEAR WARRANTY

$1750
LIMITED QTS. AVAILABLE

AST POWER PREMIUM 4/66D, 213W

+ EISA MACHINE
+ INTEL 486 DX2/66 MHz
+ 210 MB HARD DRIVE
+ 3.5" FLOPPY
+ 8 MB OF RAM
+ INTEGRATED PREMIUM VGA
+ AST 101 KEYBOARD
+ DOS 5.0, WINDOWS 3.1
+ 2 SERIAL/1 PARALLEL/ MOUSE PORT
+ONE YEAR WARRANTY

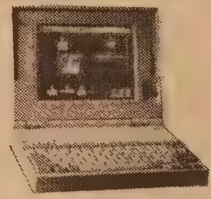
$2655
LIMITED QTS. AVAILABLE

AST PREMIUM EXECUTIVE 386 SX/20, 63V

+ AST NOTEBOOK
+INTEL 386SX/20 MHz
+ 3.5" FLOPPY
+ VGA CCFT, PAPER WHITE SCREEN
+ 2 MB OF RAM
+ 7.5 Lbs
+ MS DOS 5.0
+ CARRYING CASE
+ ONE YEAR WARRANTY

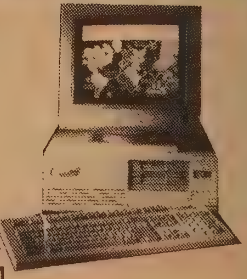
$1196
*ONLY ONE LEFT

PORTABLES COMPAQ DESKTOPS



- CONTURA 386SL/25, 120/4
- CONTURA 386SL/25, 84/4
- CONTURA 386SL/25C, 120/4
- CONTURA 386SL/25C, 84/4
- LTE LITE 386SL/25, 64/4 LCD VGA
- LTE LITE 386SL/25C, 120/4
- LTE LITE 486SL/25C, 120/4
- PORTABLE 486C/66, 210/4 COLOR
- PORTABLE 486/66, 210/4 B&W
- PORTABLE 486/66,525/4 B&W

CALL FOR LATEST PRICING AND AVAILABILITY



- DP 486/33I, 240/4
- DP 486/33M, 120/4
- DP 486/33M, 340/4
- DP 486/33M, 4 MOD 1
- DP 486DX2/50M, 120/8
- DP 486DX2/50M, 340/8
- DP 486DX2/50M, 8 MEG
- DP 486DX2/66I, 4/MOD. 1
- DP 486DX2P/66, 8/MOD. 1
- DP 486DX2/66M, 210/8

COMPUTER WERX
ONE STEP AHEAD

Network To Go!!
For PC's and Mac

- ◆ WHAT DOES IT TAKE TO HAVE A LOCAL AREA NETWORK?
- ◆ WHAT COMPUTER TO BUY?
- ◆ WHAT NETWORK INTERFACE TO BUY?
- ◆ WHAT SOFTWARE TO BUY?
- ◆ WHAT DOES IT TAKE TO INSTALL IT?
- ◆ WHO'S GOING TO INSTALL MY NETWORK?

ETC, ETC, ETC...

ARE YOU TIRED OF TRYING TO FIND OUT!

Your Solution To All This Is **"COMPUTER WERX"**
We Currently Offer Netware Network Server and Workstations and 50 to 150 Feet RG-58 Ethernet Cable Ready To Go.
Yes! You Just have To Plug and Play...Netware Is already Installed and Configured.

For More Information, Please Call Us and Ask One Of Our Sales Representatives For Network To Go!!!

C-WERX CUSTOM WORKSTATIONS/FILE SERVERS

COMPUTER WERX private label systems are based on Novell Certified ISA system boards. Select 486SX/33 through 486DX/50 & 486DX2 Processors with drive, memory, video adapters, and monitors to meet your specific needs.

CALL FOR RECOMMENDATIONS & MORE INFORMATION

MONITORS

14" SVGA 1024x768 .28	$250	Mag MX17F/17"	1087
14" SVGA 1024x768 NI .28	295	Mono VGA 640x480	139
14" SVGA 1024x768 .39	215	Nanao F5501/17"	1075
15" Flat 1280x1024 NI .28	410	Sony 1304S	588
17" Flat 1280x1024 NI .26	820	Sony 1604S	999
Hitachi CM1584MU/15"	485	Sony 2036/20"	1999
Hitachi CM1785MU/17"	925	VGA 640x480 .51	178
Hitachi CM2085M+/20"	1315	Sony 1430	610
Hitachi CM2187/21"	2150	NEC 4FGE	CALL
Idek MF8317/17"	1070	NEC 5FGE	CALL
Mag MX15F/15"	575		

ONE-STOP-SERVICE

* Call Us About Our Competitive Service Contracts.
* We Offer Extended Service On All Purchases
* FREE Estimates On Any PC, Monitor or Printer Repairs
* FREE Consultation On Novell Networe Installation and Configuration
* Authorized AST Service Center

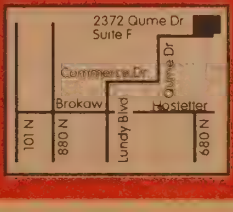
VIDEO CARDS

#9 GX1 Level 21	$655	Diamond Speedstar 24X	156
#9 GX1 Level 23	918	Diamond Stealth 24/VLB	164
#9 GX1 Level 25	1182	Metheus Premier 1280NI	285
#9 GX1 Level 29	1511	Trident/1 MB	57
Accumos 256K	30	Trident/512K	39
ATI Ultra Graphic/1 MB	305	Oak VGA 1 MB	50

HARD DRIVES

Conner 120 MB SCSI 15ms	$CALL	Maxtor 120 MB SCSI 15ms	CALL
Conner 120 MB IDE 19ms	CALL	Maxtor 213 MB IDE 15ms	CALL
Conner 200 MB SCSI 12ms	CALL	Maxtor 213 MB SCSI 15ms	CALL
Conner 212 MB IDE 12ms	CALL	Maxtor 340 MB IDE 13ms	CALL
Conner 40 MB IDE 27ms	CALL	Maxtor 340 MB SCSI 13ms	CALL
Conner 80 MB IDE 19ms	CALL	Maxtor 535 MB IDE 12ms	CALL
Conner 540 MB IDE 12ms	CALL	WD 125 MB IDE 15ms	CALL
Maxtor 80 MB IDE 19ms	CALL	WD 212 MB IDE 14ms	CALL
Maxtor 120 MB IDE 15ms	CALL	WD 85 MB IDE 17ms	CALL

Warranty: One Year Parts & Labor, Return Policy: 15 days Money Back Subject to 10% Restocking Fee, Shipping Charges Not Refundable. Not Responsible For typographic Errors, Prices Subject To Change W/O Notice. Corporate Accounts Welcome. We Accept Purchase Orders.



2372 QUME DRIVE, SUITE F
SAN JOSE, CA 95131
TEL: (408) 954-0490 Fax: (408) 954-0496

C-WERX

CORPORATE PO'S WELCOME

Test drive a Macintosh network.
Mactivity'93
THE MACINTOSH CONNECTIVITY CONFERENCE

Test drive the latest Macintosh connectivity solutions at Mactivity'93.

The Enterprise Mac. Integrating the Macintosh with TCP/IP, Microsoft Windows, DEC, Novell, and IBM host environments.

Apple Workgroup Servers. Pop the hoods of the exciting new servers from Apple Computer, Inc.

Network Diagnostic Tools. The latest tools to keep your network up and running smoothly.

Personal Digital Newspapers. Live, text-based news broadcast right into your network.

Electronic Mail. New services and features that make this essential product even more valuable.

Mobile Computing. Connect to your office from wherever you are while still maintaining security.

Mac-Based Video Conferencing. The hot new option for enhancing your communications capabilities.

And much more...

Hear about the present and future of connectivity from industry leaders.

Keynote Addresses begin at 9:00 am. Your free Exhibits & Keynotes Badge admits you to all three.

Tuesday, June 29
Putting Collaboration to Work
Gursharan Sidhu
Technical Director,
Collaborative Systems Development
Apple Computer, Inc.

Wednesday, June 30
Challenges in Mobile Communications
Gaston Bastiens
Vice President and General Manager, PIE Division
Apple Computer, Inc.

Thursday, July 1
Networking Trends and Technologies
Bill Hancock
Vice President, Engineering
Network-1, Inc.

Take advantage of all the special features of Mactivity'93.

Mactivity Test Drive. The test drive area is a special area on our multi-protocol show network separate from the vendor booths where you can put products to your own tests at your own pace.

Mactivity Product Showcase. Over 100 vendors will show you their latest Macintosh connectivity products. You will discover solutions to even your toughest networking challenges.

Mactivity Technology Theater. Compare entire categories of products at one time in a special theater inside our Product Showcase. By seeing product presentations back-to-back, you can easily choose the best solution for your network.

Over 50 Technical Sessions and 8 Full-Day Tutorials. Get the most out of Mactivity'93 by registering for the full conference. For more information, please return the form below or call Winehouse Computer Company at 408-354-2500.

Partial List of Exhibitors:
3Com
AG Group
Allied Telesis
Andrew Corporation
Apple Computer, Inc.
Asanté
Attachmate
Bear River Associates
Black Box
Cabletron
Caravelle Networks
Cayman Systems
cc:Mail
CE Software
Cisco Systems
CommForce
Compatible Systems
Compumation
Connections Journal
COPS
Dantz Development
DataViz
Dayna
DCA
Digital Equipment Corp.
Digital Products
Embarc Communications
Engage Communications
Ex-Machina
Farallon Computing
Focus Enhancements
Full Moon Software
FWB Hammer
GDT SoftWorks
Helios USA
IBM Corporation
Imagenet
IPT
InterCon Systems
International Transware
Kalpana
LAN Computing Magazine
LAN Magazine
Lexmark International
MaCNet
MacWEEK Magazine
Magna
Mainstream Data
Miramar Systems
Motorola Mobile Data
Multiaccess
Neon Software
NetSpan
Novell
Now Software
Optical Data Systems
OST
Pacer Software
Pacific Bell
PSI Integration
RAM Mobile Data
ResNova Software
Sassafras Software
Semans Communications
Sequest Software
ShareVision
Shiva Corporation
Simware
SoftArc
Sonic Systems
StarNine
Tandem
TechWorks
Teknosys
Telebit
Tribe Computer
Ungermann-Bass
Vicom
Webster Computer
Wellfleet
White Pine Software
WordPerfect Corp.
WorldTalk
Xanté
...and more of the hottest vendors are still being added!

Mactivity'93
THE MACINTOSH CONNECTIVITY CONFERENCE

San Jose Convention Center
150 West San Carlos Street
San Jose, California

Product Showcase:

Tuesday, June 29	10:00 am – 6:00 pm
Wednesday, June 30	10:00 am – 6:00 pm
Thursday, July 1	10:00 am – 4:00 pm

Keynote Addresses: 9:00 – 9:45 am daily

Get your complimentary pass to test drive the latest products of over 100 leading vendors!

☐ Please register me for the exhibits and keynotes at Mactivity'93 free.

☐ Please send me the free 12-page Mactivity'93 Conference Program.

Mail or fax this form today to:

Winehouse Computer Company
20 North Santa Cruz Avenue
Los Gatos, CA 95030-5917
Phone: 408-354-2500
Fax: 408-354-2571

Name
Title
Company
Address
City, State, ZIP
Phone
Fax

continued from page 118

spending it all on expensive shoes it purchases through Prodigy.

•**Jimmy Hoffa Virus:** Nobody can find it.

•**Los Angeles Police Department Virus:** Claims that it feels threatened by the other files on your computer, and erases them in "self-defense."

•**Mario Cuomo Virus:** It would be a great virus, but it refuses to run.

THE LATEST VIRUS THREAT IS CALLED INIT-M. IT WAS DISCOVERED AT DARTMOUTH COLLEGE IN APRIL. THIS MALICIOUS VIRUS IS DESIGNED TO TRIGGER ON ANY FRIDAY THE 13TH (ONE WILL OCCUR IN AUGUST), AND WILL CAUSE SERIOUS DAMAGE A TO THE DATA ON YOUR HARD DISK.

•**Paul Revere Virus:** This revolutionary virus doesn't horse around. It warns you of impending hard disk attack—once if by LAN, twice if by C.

•**Politically Correct Virus:** Objects to being called a "virus," prefers to be referred to as an "electronic microorganism."

•**Ted Turner Virus:** Colorizes your monochrome monitor.

•**Star Trek Virus:** Invades your system in places where no virus has gone before.

MacManiac Mini-Strokes

The self-proclaimed (and widely acknowledged) Macintosh experts of the BMUG meeting Peanut Gallery will always tell you of their numerous triumphs, the times that everyone else was perplexed, but they were able to dredge out some long-forgotten answer from their bio-RAM, and save the day.

But perhaps more important to the rest of us are their failures—the times they went "stupid." Why would we want to celebrate such bungles? Because these lapses are the very first things we should check when we have such problems. A little knowledge may be a dangerous thing, but too much knowledge can be even worse!

A BMUG member faxed me with his tale of sorrow. He's a consultant for a desktop publishing company, and a real power user. Last year, he bought a new Quadra 700 that came with a 160MB drive. But the hard drive kept having trouble—almost every kind of trouble you can possibly have. The disk wouldn't mount. The disk driver and other system files would often become corrupted, and the drive would need to be reformatted to operate correctly. There were lots of little errors. Our power user had copies of all the hard disk utility packages, and would work his way through each one in turn, until the "problem" was fixed.

Finally, a few days after the last San Francisco Expo, he turned on the drive and nothing happened. It was totally dead. Kaput. The drive was taken to an Apple dealer, where it was discovered that the drive was four days out of the year-long warranty. Pleading and weeping that it was "only" four days over, our user's entreaties proved powerless against the march of time. The dealer pointed out that this kind of problem usually manifests itself long before the drive actually stops dead in its tracks. Those drive rescuing programs, and a smart user with the knowledge of how to correctly use them, had kept the drive out of the shop. In this case, that was a bad decision. The rule should be: If your computer is still under warranty, make sure that it gets repaired under warranty.

My own embarrassing story of creeping foolishness came years ago, one hot afternoon in the BMUG office. I kept having trouble getting a SCSI removable-media drive to be recognized on the desktop. I spent a long hour, swearing away, trying all the available SCSI utilities, checking drivers and inits. (This was when System 7 was a module of some programmer's daydream.) A smart young kid walked in, heard my gripes, looked around the back—and you can guess the rest. Was the cable plugged in? Not.

This sounds obvious, but is an all too common snag, and can happen with printers too. Most programs can't tell the difference between a confused printer and no printer. People that often shift their Macs around frequently neglect to tighten the cable's screws. Always check the cable connection on the printer too if you're having printing problems.

TIP CORNER

• The first shock for users that move from System 6.0x to System 7 is the new Finder. There's no longer the option of moving between the old UniFinder of early low-memory Macintosh models, or the upscale MultiFinder. MultiFinder is always running in System 7. A "problem" with an interface that allows multiple applications to run concurrently is that the display can become cluttered with windows of open documents and folders. You can't tell what's what. One of the nicest features in the System 7 Finder is the ability to hide windows when moving between applications.

The most obvious way to accomplish this is to select Hide from the Application menu. You can either hide the current application, or you can Hide Others. If you hold down the option key while selecting one of the open applications from the menu, your current application will automatically be hidden. Even better is to simply hold down the option key when clicking on the desktop itself, or another application's window on the desktop. This automatically invokes the hide feature.

• If you're having trouble with line noise when telecommunicating, you might find that some of the phone jacks in your house are "dirtier" than others. Try moving your Macintosh and modem to another jack in your house or apartment, and see if things improve. You can also try taking things apart, cleaning the contacts and rewiring the jack. Sometimes a wire can be slightly loose, or a contact really dirty, giving your modem fits on the line.

• There's a little memory trap for the unthinking user in System 7. Some users will freak out when they open About This Macintosh in the Apple menu. Although their system reads that they have 20MB total memory on the machine, the System has incredibly grown to more than 12MB! What's going on?

You need to turn on 32-bit addressing in the Memory Control Panel. Under 24-bit addressing (what you have when 32-bit addressing is Off) all the RAM above 8MB is mapped to the System, but the memory is not used. On my 12MB Mac IIci, the System will grow from 2.5 to 6.5MB, under 24-bit addressing. There's no warning or reminder that the extra RAM that you spent good money on is being wasted. Now that's a thoughtful interface!

• A new member from Boston admitted that the BMUG tie-dye T-shirt had tipped the scales on joining BMUG. It seems that he had first seen our world-famous shirt at the Cannes Film Festival, and that's when he knew he wanted to be a BMUG member. These rainbow-colored shirts, with the line, "The BMUG T-shirt. Tie-dyed in Berkeley by Deadheads," let everyone know that you are interesting, cool, and comfortable with a computing lifestyle. They can be ordered through the BMUG office by calling the BMUG Order Line at 1-800-776-BMUG. The shirts are $15 plus $4 postage and handling. ■

WHAT IS BMUG?

BMUG is an educational, non-profit, consumer advocacy group organized to share information and provide critical direction to users and developers in the computer community worldwide. It is an independent advocate, not affiliated with any manufacturer, delivering trustworthy information and useful products.

Like any growing organization, it is many different things to its fourteen thousand international members. BMUG supports many Special Interest Groups (SIGs), an 18-line Bulletin Board System (BBS), free HelpLine, software library, weekly meetings, publications, and much more. BMUG also puts out a semi-annual 350+ page book that we call our "newsletter."

Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6:30–9:30 (or whenever we finish), in the Physical Sciences Lecture Hall on the UC campus. BMUG West and BMUG South are monthly meetings held in San Francisco and San Jose.

The BMUG Office, 2055 Center Street (a half block from the BART station), is open to the public from 9 am to 5 pm. Please come by and say hello, meet other members, and hang out.

The BMUG Helpline provides volunteer technical assistance and telephonic handholding for our members. If your question can't be answered on the spot, we try to get you in touch with someone who can help. Of course, not every problem can have a happy ending—but we try. Improve your Macintosh education, and help others by becoming a Helpline volunteer!

BMUG has one of the most up-to-date, comprehensive software libraries around with hundreds of disks filled with the latest versions of public domain or shareware programs, and HyperCard stacks. New disks are unveiled almost every week at the Thursday general meeting. BMUG also brings you the *TV-ROM™*, a fantastic collection of public domain QuickTime videos.

Our new graphic user interface FirstClass 18-line BBS offers many of the latest versions of files in our software library, as well as news, private mail, rumors, etc. With our multiline capability, you can have access to BMUG almost 24 hours a day. It's easy to use, fun, and a great resource.

BMUG can be found on most electronic services. BMUG can also be reached through the Internet international network through UG0001@applelink.apple.com.

To get further information about BMUG please write to: BMUG, 1442A Walnut St. #62, Berkeley, CA 94709. If you prefer to phone our business office call (510)549-BMUG, or fax (510)849-9026.

WIT...THE LAST WORD IN HIGH PERFORMANCE SYSTEMS!!

A Open EISA 486 LXE Serial
(6 EISA Bus Slots, Plus 1 VESA Local Bus Slot)

486DX2-66/DX2-50	$1880/$1660
486DX-50/DX-33	$1550/$1375

A Open ISA 486 GXi Serial

486DX2-66/DX-50	$1640/$1510
486DX-50/DX-33	$1550/$1375
486SX-33/SX-25	$1290/$1280

A Open ISA 486 GLi Serial

486-Cyrix DLC-40/DLC-33	$1330/$1240

Acer Open Systems Division... A Open
The Perfect Combination...Cutting-Edge Technology and Affordability!
These Great Systems Include:
- A-Open 486 Motherboard exp up to 32 MB
- 4 MB RAM w/256K Cache
- Teac 1.2 and 1.44 MB Floppy Drives
- Conner or Maxtor 130 MB IDE Hard Drive
- IDE 2FD/2HD Controller w/2 S/1P/1G Ports
- Windows Accelerator Video Card w/1 MB (For EISA, Use Orchid, Diamond or Genoa VLB Card)
- AcerView 34T, 14" SVGA .28dp, NI Monitor
- AcerTouch 32G, 101 Key Keyboard
- Acer BD24, Exclusive Mid-Tower/Full Desktop Dual Case
- 250W Power Supply
- 72 Hours Burn-In and Fully Tested

WIT High Performance Systems

WIT VESA 486DX2-66/DX2-50 w/256K Cache	$1570/$1450
WIT VESA 486DX-50/DX-33 w/256K Cache	$1480/$1350
WIT ISA 486DX2-66/DX2-50 w/256K Cache	$1440/$1330
WIT ISA 486DX-50/DX-33 w/256K Cache	$1360/$1195
WIT ISA 486SX-33/SX-25 w/256K Cache	$1040/$1020
WIT 386DX-40 w/128K Cache	$ 950
WIT 386SX-33	$ 900

- 4 MB RAM
- 1.2MB & 1.44 MB Floppy Drives
- 120 MB Hard Drive
- IDE FDD/HDD Controller
- 2 Serial/1 Parallel/1 Game Port
- Mini-Tower Case w/230W Power Supply
- 101-K Keyboard
- Windows Accelerator SVGA w/1 MB
- 14" SVGA Non-Interlaced .28 dp Monitor
- 72 Hour Burn-In & Fully Tested (Note VESA Local Bus Comes With 32-Bit VLB & 32-Bit VLB SVGA)

Enhance Your System's Capabilities...

NOTEBOOK

486-25SLC VGA Mono	$1299
VGA-Color	$2099

Systems Include:
- 2 MB RAM, 60 MB HDD
- 1.44MB 3.5" FDD
- Color VGA LCD 640 x 480 Res, 9" diagonal
- Paper White VGA 10" LCD 640 x 480, 64 Gray Scale
- Ext VGA Port
- Connector for Docking Station
- 1 Par/1 Ser
- Dual Ni-CAD Batteries and Adapter
- 8.5"x11"x1.73" Only 5.7 Lbs
- Carrying Case
- Built-In 2-Button Trackball

NOTEBOOK UPGRADES:

120 MB Hard Drive	Add $120
FAX Modem	Add $170
Memory Per MB	Add $50

SYSTEM OPTIONS:

Upgrades:	Add To System Price
170 MB HD	$50
210 MB HD	$100
250 MB HD	$150
340 MB HD	$300
535 MB HD	$600
ViewSonic 15"	$280
MAG 15"	$290
NEC 3FGX	$350
Diamond Stealth	$175
Diamond 24X	$100
Additions:	
1 MB RAM (each)	$35
One Floppy Drive	$55
2400 BD Modem	$38
96/24 Fax Modem	$56
14400 Fax Modem	$225
CPU Fan	$19
3 Button Serial Mouse	$13

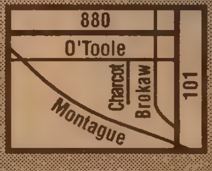
Downgrades:	Subtract From System Price
100 MB HD	$15
80 MB HD	$25
60 MB HD	$35
40 MB HD	$50
14" SVGA .39 dp	$38
14" SVGA .28 dp Interlaced	$20

COMMITMENT TO SERVE YOU:
- 30 Day Money-Back Guarantee On Systems
- NO Restocking Charge
- 1 Years Parts/Lifetime Labor Warranty
- Customized Systems
- Government P.O.'s Welcome

ALL AROUND SATISFACTION:
Stanford University, UC Berkeley, IBM,
United Postal Service, Lockheed
General Electric, AT&T,
Quantum, Conner

WIT
(408) 433-0188
Fax: (408) 433-0318 • Tech Support (408) 433-0709
Wang International Trade, Inc.
2073 O'TOOLE AVE.
SAN JOSE, CA 95131

Accept only the finest... Caviar™



HOURS:
Mon-Fri: 8-5:30pm
Saturday: 10-3

Prices Subject To Change W/O Notice. 30 Day Money Back Guarantee Only For Products That Are Incompatible With Your Software.

Network Products for Less!

Lan Adapters

Coax Ethernet

3COM 3C503-16 ETHERLINK II 16-bit/5-Pack	174/779
3COM 3C523B ETHERLINK/MC/5-Pack	302/1,334
3COM 3C507 16-BIT ETHERLINK/5-Pack	317/1,405
3COM 3C509 ETHERLINK III 16-bit/5-pack	145/650
INTEL ETHEREXPRESS 16/5-Pack	135/600
INTEL ETHEREXPRESS 16 MCA	184
INTEL ETHEREXPRESS 16 20 Pack (1 Doc/Drivers)	2,108
NOVELL/EAGLE NE2000 16-Bit	145
NOVELL/EAGLE NE2/2C 16-bit Micro Channel	263
SMC ETHERCARD ELITE 16 Coax/6-Pack	131/712
SMC ETHERCARD ELITE/A FOR PS/2	231
3COM 3C579 32-bit Coax/5-Pack	247/1,042
INTEL ETHEREXPRESS 32-Bit EISA	465
NOVELL/EAGLE NE3200 32-Bit EISA	742
NOVELL/EAGLE NE2/32C 32-Bit MC	543

10 Base-T Twisted Pair Ethernet

HTI 10 Base-T transceiver (AUI to RJ45)	89
IMC BNC Mau (AUI to BNC)	99
3COM 3C503-16TP ETHERLINK II 16 16-bit/5-Pack	184/800
3COM 3C507 ETHERLINK 16-bit TP/5-Pack	340/1,561
3COM 3C509-TP ETHERLINK III 16-bit/5-pack	145/650
3COM 3C509 COMBO/5-Pack	155/700
3COM 3C523B 10 Base-T MC/5-Pack	352/1,583
INTEL ETHEREXPRESS 16 TP/MCA/5-Pack	145/186/600
INTEL ETHEREXPRESS 16 COMB0 16-Bit/5-Pack	155/688
INTEL ETHEREXPRESS 16 COMBO (20-Pack)	2,638
SMC ETHERCARD ELITE 16T 10 Base-T/6-Pack	127/712
SMC ETHERCARD ELITE 16 COMBO/6-Pack	152/688
INTEL FlashC 16-Bit/5-Pack/20-Pack	155/675/2,670
3COM 3C579 EISA 10BaseT/5-Pack	247/1,042

Token Ring

3COM Tokenlink III 16/4 16-Bit	479
3COM Tokenlink III 16/4 10 Pack	4,498
INTEL Token Express 16/4 16-Bit	460
MADGE 16/4 Smart Ringnode/10-Pack	613/5,219
XIRCOM Pocket II Token Ring Adapter	580
SMC Token Ring Adapter 16/4 16-Bit	361
SMC Token Ring 16/4 12-Pack	4,103

External/Pocket Adapters

IBM Credit Card Ethernet Adapter (PCMCIA)	296
Credit Card 10BaseT Adapter (PCMCIA)	296
Credit Card Token Ring 16/4 Adapter (PCMCIA)	628
XIRCOM Pocket Ethernet Adapter III BNC or 10BaseT	305
Pocket Ethernet Adapter III COMBO(BNC & 10BaseT)	330
Credit Card Ethernet Adapter (PCMCIA)	290
Credit Card 10BaseT Adapter (PCMCIA)	290
Credit Card Combo BNC/10BT (PCMCIA)	311

MacIntosh Products

ASANTE MC+IIE64 Coax/MAC II	158
MC+30iE64 Coax/IIsi & SE/30	158
MC+30iET64 10 BaseT/IIsi &SE/30	158
EN/SCPB Thick/Thin/10BT for Powerbook	346
EN/SC10TPB 10BaseT for Powerbook	298
Dayna PathFinder Router (LocalTalk to EtherTalk)	651

We carry the full line of adapters from Asante, Dayna, & Farallon.

10 Base-T Concentrators

ASANTE 8-Port Concentrator/12-Ports	299/526
ALLIED TELESIS 8 Port/12 Port	316/560
EAGLE 4-port Hublet Mini-Repeater	228
EXOS/MICRODYNE 16 port 10 Base-T Concentrator	621
INTEL Int. EtherExpress TPE Hub/ISA (12 ports)	565
INTEL Int. EtherExpress TPE Hub/EISA (12 ports)	641
INTEL Hub Expansion Board (12 add'l ports)	490
SMC 3508TP 8-Port Concentrator/12-Ports	329/646

SNMP Manageable Concentrators

ASANTE 1012 12-Port Hub	888
ASANTE 1701 Smart Hub 12-port w/SNMP module	987
ASANTE View for Windows	710
ALLIED TELESIS 12 Port w/SNMP module	1,186
3COM Linkbuilder FMS TP Hub	685
3COM FMS Isoview Software	2,695
3COM FMS Management Module	640
3COM FMS Isoview Management Option	249
NETWORTH 3-Slot/6-Slot/10 Slot Chassis	642/836/1,610
12 Port Host 10BaseT Module/Smart Module	1,234/1,791
24 Port Host 10BaseT Module/Smart Module	1,546/2,191
Tri-Segment Stackable 24 port (New Product)	**1,288**
Tri-Segment Stackable 24 port w/ SNMP module	**1,932**
NetWare Application Engine w/o NetWare Runtime	3,026
NetWare Application Engine w/ NetWare Runtime	3,783
Hubview SNMP management software (Windows)	1,546

SPECIAL

EXABYTE DAT SOLUTIONS

4-8 GB int. workstation based	$1,618
4-8 GB ext. workstation based	$1,772
4-8 GB int. server based from	$1,705
4-8 GB ext. server based from	$1,859

- substainable transfer rate up to 932 kilobytes/sec.
- high-speed searches up to 268 MB/sec.
- SCSI 1 & SCSI 2 command compatible.
- 3.5" form factor

XIRCOM II POCKET ETHERNET ADAPTER (BNC) .. Buy 2, get 1 FREE $340 EACH!

Repeaters

IMC LANextender BNC/BNC-limited to 1 per lan	325
IMC Dual Port Ethernet Repeater BNC/BNC	461
IMC Dual Port Repeater AUI/Fiber Optics	540
IMC Dual Port Repeater TP/Fiber Optics	540
IMC Quad Port Repeater (4 BNC)	626
TUTANKHAMON Dual Port Repeater BNC/BNC	399
TUTANKHAMON Qual Port Repeater (4 BNC)	599
TUTANKHAMON Octo Port Repeater (8 BNC)	1,099

Bridges & CSU/DSU

ALLIED TELESIS Local Ethernet Bridge	1,449
ALLIED TELESIS Local Ethernet Bridge w/ SNMP	1,739
NOVELL MultiProtocol Router 2.0	721
3COM NetBuilder Local Ethernet (Thick)	3,637
3COM NetBuilder Token Ring	4,736
3COM NetBuilder Remote (Thick/Thin)	5,263
INTELLICOM Quicknet Enet Local, 2AUI,2BNC,SNMP	1,300
MADGE 16/4 Token Ring Bridge	2,051
PROTEON DNX 300i Token Ring to Token Ring	4,162
PROTEON DNX 300i Token Ring to Ethernet	4,162
PROTEON DNX 300i Token Ring to Dual Series	4,919
SYNOPTICS 3323S Enet High Speed Local Bridge w/AUI	2,874
SYNOPTICS 3522 Token Ring Bridge	5,677
UDS/MOTOROLA DDS/MR1 Dual RS232/v.35 w/interface	589

Network Printing Solutions

CASTELLE JETPRESS BNC/10Base-T	436
CASTELLE LANPRESS BNC (2 PAR/2SER)	662
DIGITAL NETSprint/100 BNC/10Base-T	504
DIGITAL NETSprint/100 16/4 Token Ring	786
FRESH TECH Printer Assist (Software)	175
INTEL NETPORT II for Ethernet	552
INTEL NETPORT II for 10 Base-T	552
INTEL NETPORT II for Token Ring	790
XIRCOM PRINT SERVER (New Product)	415

Network Fax Solutions

CASTELLE FaxPress 1 Line Fax Server (BNC)	2,559
CASTELLE FaxPress 2 Lines Fax Server (BNC)	3,218
CASTELLE FaxPress 2 Lines Fax Server (Token Ring)	3,218
CHEYENNE FaxServe VAP/NLM	655
OPTUS FACSys NetWare Fax Server Software	720
INTEL Satisfaxtion Modem 200	330
INTEL Satisfaxtion Modem 400	447
INTEL Net Satisfaxtion for 8 fax boards (20 users)	653
INTEL Net Satisfaxtion for 8 fax boards (1000 users)	1,068
JETFAX II 9250 w/1 MB	625
JETFAX II 9450 w/4 MB	1,016
DIGIBOARD Digifax for 1 fax board (UNIX)	293
DIGIBOARD Digifax for 8 fax boards (UNIX)	491

Tape Backup Solutions

COLORADO DJ-10 120MB Int. Tape Drive	161
DJ-20 250MB Int. Tape Drive	226
JTC-10 120MB TRAKKER Parallel Port Tape Drive	380
JTC-20 250MB TRAKKER Parallel Port Tape Drive	460
PT-25 2GB SCSI Tape Drive w/Ctrl	1,055
PT-50 4GB SCSI Tape Drive w/Ctrl	1,664
Palidrome Network Archivist v2.0 (SW-TNA)	1,228
Network Archivist (SW-TNA-NLM)	1,228
Workstation Option (SW-WKSTN)	498
ELS 2 GB, DOS, 4MM, CTRL (ELSF2000A)	3,392
ELS 2 GB, NLM,4MM, CTRL (ELSF2000N)	3,584

Uninterruptible Power Supplies

APC BACK-UPS 250 (200watt UPS for workstations)	140
APC POWERCHUTE PLUS for Novell (VAP/NLM)	99
APC POWERCHUTE PLUS for Unix	149
APC SMART-UPS 400/600/600Rackmount	338/434/488
APC SMART-UPS 900/1250/1250Rackmount	628/836/910
APC SMART-UPS 2000	1,303

Cable Testers & Supplies

RG58 & RG62 Rachet BNC Crimper	75
RJ-45 Crimper	75
RG58 Ethernet BNC-Crimp (100 pak)	125
RG62 Arcnet BNC-Crimp (100 pak)	125
RJ45 10 BaseT Connectors (100 pak)	40
AT&T 10Base-T Cable (1000' min) Level 3/Level 5	100/200
BELDEN PVC RG58 or RG62 Cable (1000' min)	175
PLENUM RG58 or RG62 Cable (1000' min)	350
MICROTEST Quick Scanner	607
MICROTEST MT310 TP/COAX Scanner	1,142
MICROTEST MT350 NEXT Scanner	2,525

Network Modems

SHIVA NET MODEM/E 9600 BNC	1,567
MICROTEST Ethernet LANModem	1,439
MICROTEST Token Ring LANModem	2,050
U.S. ROBOTICS Modem Sharing Kit V32BIS	532
U.S. ROBOTICS Dual Modem Sharing Kit	937
U.S. ROBOTICS Shared Access CommServ	1,495
BRIGHTWORKS NetRemote+(Software, 100users)	359

E-Mail

cc:MAIL DOS Platform V4.0	214
OS/2 Platform	359
WINDOWS Platform	359
MacIntosh Platform	359
Unix Platform (New Product)	648
10 USERS license/25 Users/100 Users	250/612/2,387
Gateway v3.21 (MHS)	960
Microsoft PC Mail v3.0 Server + 10 Users	479
PC Mail 5/20/100 Users	273/930/3,633
MHS/PROFS/SMTP/X400 Gateway	708/3,405/3,405/3,405
FAX Gateway	1,419

Novell Software

UnixWare Personal Edition	185
LANalyzer for Windows v2.0 (Windows)	1,083
Lan WorkPlace for DOS Single/10 Users	290/1,445
Lan WorkGroup-5/10/20 Users	1,125/1,866/2,613
Lan WorkPlace for MacIntosh (Single User)	290
NetWare for Mac 5/20/100/200	347/626/1,397/2,096

Network Utilities

CHEYENNE Monitrix Network Mgmt.	583
Inoculan (20 workstations)	326
Inoculan (250 users)	655
Utils for NetWare 286/386	257
ARCserve NLM V4.0 5/20 users	270/764
ARCserve NLM V4.0 50/250 users)	954/1,208
MACserve NLM	323
CENTRAL POINT Anti-Virus NLM for NetWare 3.11	890
DIRECT ACCESS Network Menu	366
FRYE COMPUTER SYSTEMS NetWare Management v1.1	339
Early Warning System v1.1	339
Lan Directory v1.1	339
INTEL LanDesk Manager	712
ONTRACK NetUtils 3.0	234
POWERCORE Network Scheduler 3 DOS/WIN 5 Users	275
Network Scheduler 3 DOS/WIN 25 Users	830
Network Scheduler 3 DOS ONLY 5/25 Users	176/485
XTREE XTNET Network File Manager	341
XTREE XTNET server extension	100
XTREE Tools for networks	543

Peer-to Peer Networking

ARTISOFT Lantastic 5.0 A/I Software	70
AE-2 Adapter 16-bit Ethernet Adapter	217
AE-2 v5.0 Starter Kit	579
Noderunner Starter Kit for Windows	550
Noderunner/C Coax 16-Bit Adapter	188
Noderunner/A Combo 16-Bit Adapter	238
Lantastic 5.0 for NetWare	296
Lantastic for Mac	578
Lantastic 5.0 for Windows	144
Lantastic 5.0 for TCP/IP	177
Etherbasket AE-2 Adapters (12 pack)	2,172
Central Station for NetWare	431
NOVELL NetWare Lite 1.1	70
NetWare Lite coax starter kit (2 Stations)	420
NetWare Lite Add-On (1 Additional Station)	210

- **All prices listed are cash prices.**
- **All orders shipped C.O.D. from So. S.F.**
- **Fortune 1500 companies and Government P.O. accepted on approved credit. Surcharge will apply.**
- **20% restock fee applies to all non-defective returns and refused shipments.**

FASTLINK

Network Products

1-800-788-LANS

- **Prices subject to change without notice.**
- **We are not responsible for typographical errors.**
- **Shipping & Handling charges will be added to all orders.**
- **Quantity pricing available for 10 units or more.**

Inside 415 Area Code (415) 872-1376

FAX: (415) 872-6634

Upcoming Events:

June 3	Barbara Chan, author of *Kid Pix Around the World*; Central Point Software, MacTools and Safe and Sound (data recovery).
June 10	Mobius, Speedster 040 Accelerator; Adambyte, Powerbox (Powerbook storage).
June 17	Raster Ops, The Editing Aces Suite and MoviePak (digital video).
June 21	BMUG South at United Way Office in San Jose. Delta Tao Software, Spaceward Ho!, Color MacCheese and Monet; Mercury Center (new online service from SJ Mercury Newspaper).
June 24	Signa Designs, Sneak Preview of New Unannounced Product.
June 28	BMUG West at Exploratorium museum in San Francisco. Software Tutor, Flexware (modular accounting package), Great Plains Software Dynamics (accounting and business).

Please Note: Summer BMUG Meetings will be held in 100 Lewis, not PSL. Call the BMUG Announcement Line for the latest information on BMUG meetings, Special Interest Groups (SIGs), and Seminars! (510) 849-9114.

Cal Tech Instruments

28048 Sandlewood Dr., Hayward, CA
Tel (510) 786-0701 Fax (510) 786-9809

NEW FD/HD/TAPE DRIVES	
1.2 Floppy Drive	$46
1.44 Floppy Drive	42
130MB IDE Drive	185
170MB IDE Drive	219
215MB IDE Drive	245
255MB IDE Drive	268
355MB IDE Drive	340
120MB Tape Backup	140
250MB Tape Backup	193
250MB Trakker	382
VIDEO OPTIONS	
1MB SVGA Card	46
VGA-256K (880x600)	25
Diamond Stealth 24 w/1MB	162
Diamond Speed StarPro VLB	135
14" SVGA .28 Monitor	239
14" SVGA .28 Non-Int Monitor	270
15" SVGA .28 Non-Int Monitor	370
MATH-CO ULSI:	
387SX-16/20/25	$65
387DX-33	67
387DX-40	68
CASES:	
Minitower 230W	$49
Medium Tower 230W	69
Full Tower 230W	94
MOTHERBOARDS & CPU	
486DX 33/128K	$395
486DX 33/256K VLB	405
386DX 40/128K	142
1MB SIMMs 70	30
4MB SIMMs 70	131
CPU	Call for Best Price
Laser Memory Oki/Pana/HP	$BEST
MISCELLANEOUS:	
Pro Audio Spectrum 16-bit	$165
Toshiba CD-ROM 200ms	435
Mitsumi CD-ROM 350ms	180
Texcel CD-ROM 285ms	365
Sound Blaster Pro Deluxe	118
14.4/14.4 Fax/Modem US Rob. Ext	195
14.4/9600 Fax/Modem US Rob. Int	175
14.4/ Fax/Modem Int	155
96/24 Fax/Modem	43
IDE I/O 2S/1P/1G	13
101 Keyboard/Click	19/30
Cordless Mouse w/Windows 3.1	55

Efi's
DISCOUNT COMPUTERS

3Com®
AST Research Inc.
Everex
Canon
Samsung
Mitsubishi Electronics
Toshiba
intel®
Zenith data systems
NEC
Iomega
Acer

JUST A SAMPLE

LOWEST PRICES ON ALL AST PRODUCTS GUARANTEED!

New AST Pen Exec 120MB/200MB	$2549/2899
NewAST Notebook 386SL25 2/4MB 80MB, Windows, Fax/Modem	2259
New AST Notebook 486SL25 w/4MB, 200MB, Mono, Windows, Mouse	2395
AST Power Premium 486/33 from	1895
AST Bravo 486/33, 4MB, 120MB Bundle w/Monitor	1725
AST Bravo Base 486/33, 2MB	1099
Toshiba T4400C w/120MB	3445
Okidata OL400	569
Canon 10EX	269
80MB IDE Drive	195
Cordless Mouse w/Windows	55
3 Com 3C509	125
96/24 Internal Modem	69

Prices Reflect A Cash Discount Only

TWO User Network Starter Pack
FREE!!!
with purchase of Ethernet Card

altima
OKIDATA
IBM
COMPAQ
ALR
ALPS AMERICA
Panasonic
EPSON®
Hewlett Packard
Hayes®
CITIZEN

Fax for inquiries, price bids & purchase orders: (510) 283-1744
Free delivery and installation of systems within 30 miles. Free in-store installation of any product.

VISA
MasterCard
DISCOVER

CALL US FOR YOUR PRICE ON ANY PRODUCT.
HOURS: MON-FRI. 10-6, SAT. 10-2
3441 GOLDEN GATE WAY, LAFAYETTE, CA 94549
(510) 283-1700
CALL BEFORE YOU BUY

We are actively seeking minority businesses suplying computer products. Please Call!
Prices may change without notice. 90 day warranty on all products.

Cost-Effective Network
Storage Solutions

SCSI Peripherals

Maxtor Network Hard Drives
- P1-17S 1.7GB 13ms
- PO-12S 1.2GB 13ms
- LXT 535S 535MB 12ms
- LXT 340S 340MB 15ms
- 7213S 213MB 15ms
- 7120S 130MB 15ms

MaxOptics Optical
- RXT800HS™ WORM 786MB Formatted
- Tahiti II™ 1GB Erasable Optical Disk Drive

DTC Controllers
- 3280 ISA
- 3292 EISA Busmaster
- 3290 EISA 4-16MB Cache

Ultrastor Controllers
- UL14F ISA Busmaster
- UL24F EISA Busmaster
- UL34F VESA Local Bus
- UL124 Disk Array Controller

IDE Peripherals

Maxtor Hard Drives
- LXT535A 535MB 12ms
- LXT340A 213MB 15ms
- 7213A 213MB 15ms
- 7120A 120MB 15ms
- 7245A 250MB 15ms

Specialized IDE Controllers
- UL15C IDE CACHE
- DTC2290 EISA IDE
- DTC2270 VESA LOCAL BUS IDE

Microland offers a complete line of network storage solutions, from Maxtor IDE and SCSI HDD to high-performance fault-tolerant disk arrays. We specialize in Unix, Peer-to-Peer and Novell applications.

Network Peripherals
- Colorado Memory Systems Tape Drives
- Wangtek/WangDAT Tape Drives
- Fujitsu Network Printers
- SMC Ethernet Network Adapters
- NIC Low Cost 8/16 Bit Ethernet Cards
- BNC Coax/10 BaseT/AUI Coax/Combo
- Hubs: 6/12 port Ethernet

UNIX Systems

Special Intelligent Serial Subsystems
- I/O+8.8 port RJ-45 ISA RISC I/O card
- X10 4-128 port local RISC ISA/EISA
- RIO 8-512 port local/remote fault tolerant RISC

Link Terminals
- MC2 Entry Level Several
- MC5 Intelligent Serial
- WT6 Alpha Windows Serial
- SCO UNIX 3.2.4

Phone 408/441-1688

FAX 408/441-1766

MICROLAND ELECTRONICS

1883 Ringwood Ave. ▪ San Jose ▪ CA 95131

Maxtor®

DRIVEN BY THE BEST.

Network Communities Across Boundaries

The Second Of A Two-Part Article Looks At The Impact Of Networked Communities Across National, Language, Time, and Organizational Boundaries

BY JOHN S. QUARTERMAN

Copyright © 1993 by MIDS. All rights reserved. John S. Quarterman is editor of Matrix News, *a monthly newsletter about contextual issues crossing network, geographic, and political boundaries, and is secretary of Matrix Information and Directory Services, Inc., of Austin. He is the author of* The Matrix: Computer Networks and Conferencing Systems Worldwide, *Digital Press, 1990, and coauthor of* The Design and Implementation of the 4.3BSD UNIX Operating System, *1989,* UNIX, POSIX, and Open Systems: The Open Standards Puzzle, *1993,* Practical Internetworking with TCP/IP and UNIX, *forthcoming in 1993, both from Addison-Wesley. Quarterman is a partner in Texas Internet Consulting (TIC), which consults in networks and open systems, with particular emphasis on TCP/IP networks, UNIX systems, and standards. He can be reached at: MIDS, 1106 Clayton Lane, Suite 500W, Austin, TX 78723. Email: mids@tic.com.*

Computer networks support communication services such as email, mailing lists, and newsgroups that can lead to the formation of places and communities online, especially when used in conjunction with resource sharing services such as file transfer. These communication and resource sharing services are used for collaboration in both business and pleasure. These services, and the places and communities they support, can cross many kinds of boundaries.

Networks cross national boundaries not only because their physical links do, but also because they cross barriers of time and language. Within an organization, whether local or intercontinental, networks can cross and change organizational boundaries. They can even permit more independence of researchers and other workers.

NATIONAL BOUNDARIES

Networks don't stop at national boundaries. A message submitted to a mailing list in the United States may be approved by a moderator in Japan, reposted to a USENET newsgroup in Europe, and read by someone in Australia or India, all within minutes or hours.

If the message should have content offensive to some government along the way, who is responsible or liable? The original poster? The moderator? The person who reposted the message? The person who finally read it? The administrators of the systems that carried the message? How do you even know for sure what path the message took, or who the people involved were? How can the original poster know what might be illegal in some reader's country?

Ideas about issues like freedom of speech vary per country, and what a government will do to its own citizens doesn't necessarily correspond to what it will to foreigners. Some countries, such as the former Soviet Union and present-day China, appear to deliberately try to suppress wide area networking, or at least to limit it to government-approved research establishments. This might indicate that these governments recognize that networks are subversive.

I have not been able to verify the rumor that in the early 1980s there was a trade of guns from Belgium for modems from the Netherlands, but the rumor nicely characterizes the importance and near-outlaw nature of networks to many people. Modems in Europe, typically, must be licensed by the PTT. Yet people can get unlicensed modems and with them establish communications across national boundaries, bypassing PTT data carrier restrictions.

More recently, some US newspapers and wire services (not to mention certain overzealous law enforcement agencies) appear to be trying to equate modem possession with possession of a loaded gun (sometimes in very explicit terms). There may actually be some similarity. Modems and computer networks, like firearms, promote independence. They are thus subversive, in the sense of making their possessers harder to control by governments. Use of modems and computer networks even makes people harder to influence by traditional media, since networks often permit more direct access to primary sources.

But greater freedom is not criminal. Some modem owners actually do use computers to commit crimes. But some automobile owners are hit-and-run drivers, and that doesn't make us try to criminalize all car owners. Most modem owners use computers for work and play, just like they use automobiles.

TIME BOUNDARIES

Time zones can be a real problem for the telephone. Tokyo is seventeen hours later than San Francisco. So if it is 9 am Thursday in Tokyo, it is 4 pm Wednesday in San Francisco. Given that Japanese often start work early, that still only gives about a two-hour window for someone in Tokyo (8–10 am) to call someone in San Francisco (3–5 pm).

The problem is just as bad in the other direction. Paris is eight hours earlier than Tokyo, so when it is 5 pm in Tokyo it is 9 am in Paris. Even if people in Tokyo work late, there's still not much of a telephone window between Japan and Europe.

Paris to San Francisco is a nine-hour difference, so there's essentially no telephone window during regular working hours on either end. Add to this the uncertainty of whether the other person is on daylight time (summer time in Europe) or not. This is telephone tag with a vengeance.

continued on page 148

Within an organization, whether local or intercontinental, networks can cross and change organizational boundaries.

FAULT TOLERANT SYSTEMS AT COMPATIBLE PRICES!

DATA SAFE SYSTEMS™

NEVER LOSE YOUR DATA—EVER!

With our DATA SAFE technology you will experience no failures, no data loss nightmares, no interrupted business.

WHAT IS A DATA SAFE SYSTEM™?

Data Safe is a fault tolerant system using the latest technology to make sure your data is never lost at any time. Any time your 1st hard drive fails the 2nd hard drive kicks into operation, immediately after warning the operator of failure in only 5 miliseconds (ms) access time. No data is lost. Our fault tolerant DATA SAFE SYSTEMS™ are all based on IBM compatible systems so you continue to use your present software and hardware without buying expensive upgrades. DATA SAFE SYSTEMS™ are rated 1. The highest compliance rating in the industry. Our technology is the most reliable and will save your data effortlessly. You will save on the expense of buying tape backup cartridges, and on system down time due to backups. For years fault tolerant technology has been protecting sensitive data from being lost. Now PARS offers you this technology at a fraction of the price that other vendors sell their "fault tolerant" systems. And best of all our DATA SAFE SYSTEMS™ are compatible with your present system or network.

10 REASONS TO BUY A DATA SAFE SYSTEM™:

1. No data loss worries, enjoy uninterrupted business operation.
2. No tape backups and no system down time.
3. Instantaneous back-up capability.
4. No wasted time to search for vital data.
5. No more paying for data recovery costs.
6. Optional removable hard disks for storage, or work at home capability.
7. Data Safe automatically updates your information.
8. Upgrade our basic system at any time, when you need "fault tolerant" data protection.
9. You can also integrate DATA SAFE SYSTEMS™ in your present networks easily or let the pros at PARS send out a qualified CNE to help you with your network (please call for a free consultation and rates.)
10. Data Safe is FREE with every system.

DATA SAFE is FREE with every system!

BASIC SYSTEM INCLUDES:

- Motherboard & CPU With 256K Cache
- 4MB RAM 70ns
- SVGA Card w/1MB
- SVGA Monitor 1024x768 .28dp
- 2 Serial, 1 Parallel, 1 Game Ports
- IDE 2FD/2HD Controller
- Mini-Tower with 230Watt power supply
- Enhanced 101 Keyboard

You can upgrade to Data Safe System™ at any time. Price is dependant on the second hard drive you choose. All we do is flick a switch!

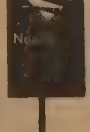
VESA LOCAL BUS SYSTEM UPGRADE........................ADD $125

Includes: VESA Motherboard, IDE, & Controller

DATA SAFE BASIC SYSTEMS

	120MB	200MB	340MB
386-40 /128K	$995	$1079	$1219
486-33 /256K	1295	1379	1529
486-50 /256K	1475	1559	1699
486-66 /256K	1529	1599	1749

UPGRADE Your Existing System to a Data Safe System™ Call Now!



NETWORKING SERVICES

Fully trained Network CNE on staff.
We specialize in Data Protection
FREE 192 page Networking products catalog.
SPECIAL Buy 2 NE-2000 Network Cards and get 125' of coax network cable FREE. Only $75 a card.

VALUE CENTER

24-HOUR FAX RESPONSE 510-888-1100

For the latest pricing on all compter systems, components, hard drives, monitors, and much more call our 24-hour fax response number. We will imediately fax back to you 7 days a week. Prices are updated daily. Plus no salesman will call to push you. Enjoy this convenience today.

Momenta

Pen-Based Notebook

- 386SX-20MHz
- 8MB RAM
- 40MB Hard Disk DOS, Windows and much more!

$999

DATA SAFE SYSTEMS™ is exclusively sold and distributed by the service experts at PARS International Computer.

PARS Int. Computer 510-733-0103

22441 Foothill Blvd. • Hayward, CA 94541 Fax 510-733-0206

Value Center
24-hour Fax Response
510-888-1100

Why

ACCESS?

EXPERIENCE QUALITY

A Leader In Performance Systems!

-5 Years of Business Experience

-$3 Million in Inventory

-Located in the Heart of Silicon Valley

-Over 2,000 Line Items to Choose From

-Well-Stocked 18,000 sq. ft. Showroom

-Factory Trained Technical Staff

-Authorized Sales & Service for Most National Name Brand Products

-Extended Warranty Available

STORE HOURS

M-F 9-8

SAT-SUN 10-5

(Pacific Time)

The Powerful Desktop ACCESS Systems

ACCESS' high-speed machines provide exceptional performance and flexibility for long-term business needs. Delivers multitasking capabilities for easy handling of simultaneous applications.

And above all, ACCESS systems feature top quality materials, construction, reliability and support to meet the standards of the most demanding customers.

ACCESS

ACCESS 386DX-33 $999

- 128K Cache, 4MB RAM
- Conner 80MB HDD • Video 7 VGA 256K Card
- Impression 1439 14" SVGA Monitor
- Deluxe Desktop or Mini Tower
- Dual floppies
- Math coprocessor socket

***FOR A LIMITED TIME... Receive a FREE Z-NIX Cordless Mouse & 300VA AC-Line Conditioner w/ System Purchase!**

ACCESS 386DX-40 $1029

- 64K Cache, 4MB RAM
- Conner 80MB HDD • Video 7 VGA 256K Card
- Impression 1439 14" SVGA Monitor
- Deluxe Desktop or Mini Tower
- Dual floppies
- Math coprocessor socket

ACCESS 486DX-33 $1458

- 256K Cache, 4MB RAM
- Conner 120MB HDD • Trident SVGA 1MB Card
- Impression 1428 14" SVGA Monitor
- Deluxe Desktop or Medium Tower
- Dual floppies

Featured in Computer Shoppers "Incredible 486 Deals" January '93!

ACCESS 486DX-50 $1607

- 256K Cache, 4MB RAM
- Conner 120MB HDD • Trident SVGA 1MB Card
- Impression 1428 14" SVGA Monitor
- Deluxe Desktop or Medium Tower
- Dual floppies

All High Performance Systems Feature:

- Motherboard w/CPU
- Cache expandable to 256K
- 4MB RAM expandable to 32MB
- 5.25"1.2MB & 3.5" 1.44MB FDD
- AMI Bios
- IDE hard/floppy disk controller
- 2 Serial/parallel/game ports
- Real-Time clock/calendar
- 101 enhanced key keyboard
- MS-DOS 6.0
- 72 hour extensive testing
- 1-year parts & labor warranty

*Certain Restrictions Apply

Sales Hotline 408-247-4444

Technical Support 408-247-4990 Fax 408-247-4448

SERVICE AND MORE...

Catch The Local Bus!

VLB-VESA Local Bus

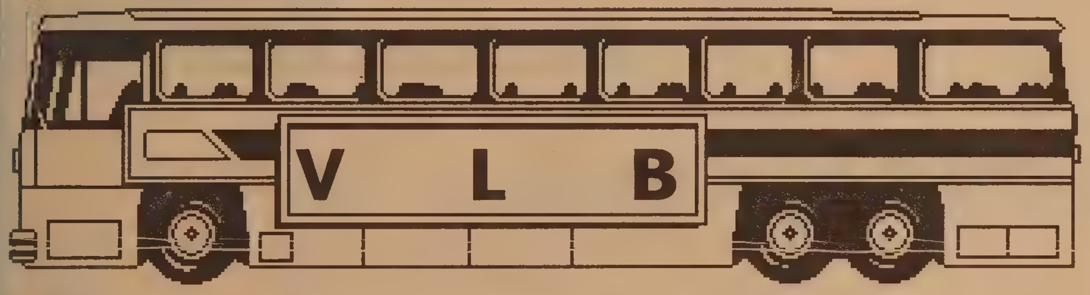
486-33MHz

High Quality GENOA *Motherboard:*

- **MAXTOR 200MB**, 15ms hard drive
- **256K** Cache memory
- 2 serial, 1 parallel and 1 game port
- **GENOA VLB** IDE Controller
- 3.5" & 5.25" floppy disk drives
- **4MB RAM** exp. to 32MB on-board
- **GENOA VLB** 8500 VGA card
- 101-key enhanced keyboard
- **Viewsonic** 6E Non-Interlaced monitor
- Deluxe medium tower, & DOS 6.0

Genoa
SYSTEMS CORPORATION

$1707



The Powerful Desktop

ACCESS VLB System

486-33MHz

High Quality SiliconStar *Motherboard:*

$1519

- **CONNER 120MB**, 19ms hard drive
- **256K** Cache memory
- 2 serial, 1 parallel and 1 game port
- **GENOA VLB** IDE Controller
- 3.5" & 5.25" floppy disk drives
- **4MB RAM** exp. to 32MB on-board
- **GENOA VLB** 8500 VGA card
- 101-key enhanced keyboard
- **Viewsonic** 6E Non-Interlaced monitor
- Deluxe medium tower, & DOS 6.0

ACCESS

ACCESS
COMPUTER TECHNOLOGIES

2225 EL CAMINO REAL SANTA CLARA, CA 95050

Not responsible for typos / Price subject to change w/o notice / Price good thru 6/27/93

ACCESS-able

An Authorized EPSON & SONY Reseller!

EPSON®

WHEN YOU'VE GOT AN EPSON,
YOU'VE GOT A LOT OF COMPANY™

1-YEAR* ON-SITE WARRANTY!
EPSON

Equity 386SX-16Plus

- **16MHz 386SX**
- **2MB RAM** exp. to 14MB
- **60MB** Hard Drive
- 101 key keyboard
- **12" Mono VGA Monitor**
- **3.5"** floppy drive
- Intergrated SVGA card
- **One-year onsite warranty**

*Certain Restrictions Apply

$488

PROGRESSION 486DX2/66

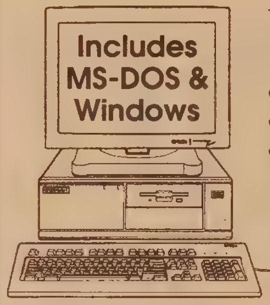
Born to Run Windows...
The Fastest in its Class!

- **Intel** 486DX2/66 processor
- Built-in math coprocessor
- Epson's VirtualCache™
- 3.5" 1.44MB FDD
- Built-in 8KB cache
- 4MB RAM exp. to 36MB
- 6 8-bit I/O slots
- MS-DOS, Win. included
- Wingine™ graphics acceleration architecture
- Intergrated serial, parallel, mouse & VGA ports

EPSON PROGRESSION
wins "hands down" when
compared to:
•Compaq •NEC •DELL
PC Magazine Jan. 26, 93 issue

$2399

*Monitor not included



Equity 4 Systems *NEW!*

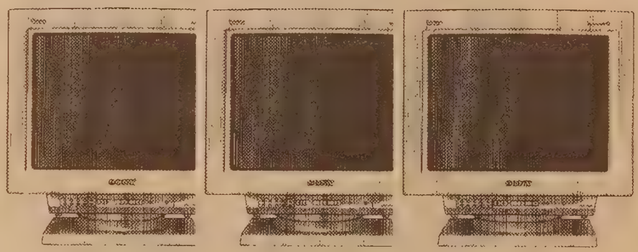
Affordable High Performance!

- Support for Intel's OverDrive
- **4MB RAM** exp. to 32MB
- **512K** video DRAM exp to 1MB
- Zero Insertion Force sockets
- **3.5"** floppy drive
- 101 key keyboard & mouse

486SX-25	120MB HDD	$1099
486DX-33	w/o HDD	1199
486DX-33	120MB HDD	1599
486DX-33	240MB HDD	1699

*Monitor not included

SONY



Trinitron Digital Control Color Monitor

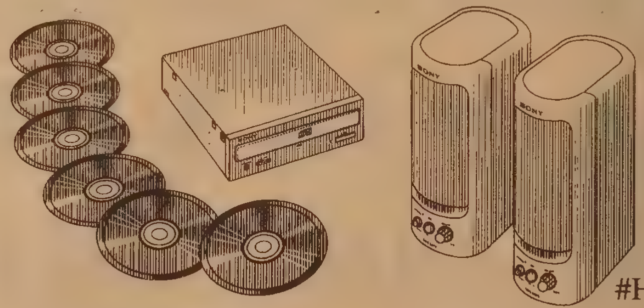
CPD-1730 **$999**

- **17"** Super Fine Pitch™ Multiscan Trinitron color display
- .25mm aperture Grille pitch, 1024 x 768 at 72Hz Non-interlaced
- Variable scan frequency of 28 to 58 kHz
- Overscanning for crisp edge-to-edge images
- Sony Display Memory System
- Full compliance with Swedish MPR II standards

CPD-1320	14"	640 x480	.25mm	$339
CPD-1430	14"	1024x768	.25mm	599
GDM-2036	20"	1024x768	.30mm	1999

Desktop Library

Complete Internal Multimedia CD-ROM System



#HDS31C

NEW! **$577**

- Caddyless, half-height internal drive with 550 ms access time
- Compatible with MPC & multisession Photo CD standards
- 16-bit sound/interface board
- Two Sony speakers with batteries
- Cable, software and more...
- Includes the follwing CD-ROM titles:

-GeoWorks CD-ROM Manager, Tempra for Photo CD
-New Grolier Multimedia Encyclopedia-Great Wonders of the World Vol. 1
-Time Magazine Compact Almanac-Presidents: It All Started with George
-Where in the World is Carmen San Diego Deluxe

Sales Hotline 408-247-4444

Technical Support 408-247-4990 Fax 408-247-4448

PRODUCTS & PRICE!

CLEARANCE & DEMO ITEMS!

MISCELLANEOUS

Targus Leather Notebook Case CAS003	$99
Xerox Presents software SSK001	19
Panasonic Notebook Case IAP150C	9
VGA Dimmer software	6^{99}
SuperStor SST363	19
Panasonic Cordless KX-T4000 PHP4000	166
External 360K FDD w/ power supply	39
3 Bay Ext. Drive Case w/ power supply CAS503	99
Panasonic CSF for 1092i PTP9034	29
Epson CSF 1070/1170 PTE80640	169
Panasonic Tractor KX-P21 PTP9021	19
ScanPlus GS Desk Scanner PMP300	299
Video 7 Win . VGA Card ADN216	119
Bellsouth Big Button Phone PHB176	29^{95}
Bellsouth Ans. Phone PHB1200	55^{95}
Everex EV-125 Magic 16 Card	19
12" Mono Monitor Filter XSP12M	6^{99}
Lithium 3.6V Battery XVP005	8^{99}
IBM PS/2 1200 Int. Modem ADC012P	9^{99}
Phanton 250 Host Adapter HTP250X	19
Panasonic P474 Font Cartridge (Prestige/Elite) PTP4474	.89
Epson LQ Multi-Font Module PTE7407	4^{99}
Fellows Paper Shreeder 36070	89^{99}
Fellows Anti-Glare Filter 91867	12^{99}
Brother Color Kit M1824/1924 PXBCK100	39
Brother Color Ribbon M18/19 series PXB9095	13^{99}
Brother Blk. Ribbon M18/19 series PXB9090	7^{99}
Brother Film Ribbon M18/19 series PXB9097	15^{99}
Panasonic Ribbon for KX-1524 PXP140	9^{99}
Epson EX series Black Ribbon PXE8763	5^{99}
Citizen CSF GSX-145 CSF145	99
Seagate 157A 40MB IDE HDS157	195
Fax Modem for Ultrathin Notebook LTCFAX	179
NEC Color Kit P62/6300 PTN500C	49
Epson EPL6000 Font Cartridge PTEH65	39
TEAC Tape Backup 40MB Int. HTT040I	99
Canon BJ-10 Carrying Case PTC010G	6^{99}
Telephone CO Line Simulator FSW001	89
Diskwasher Printer Cleaner CDD1835	11^{99}
GPC 3 Color Ribbon PTG003	129
GPC 8.5" x 11" Paper 1000sheet PTG010	49
GPC 8.5" x 14" Paper 1000sheet PTG014	55
GPC Transparency Letter 50sheet PTG020	49
GPC Transparency Legal 50sheet PTG024	55
Sydos 44MB Int. Removable w/ interface HDS44I	419
PDP Pacific SI 1MB for IIIsi PDP903	89
256K exp. for DeskJet 500C PTA500M	49
Sony/3M DC6250 250MB 1/4" Cartridge HTT6250	29
Printer Muffler 132 column XTP132	55
Intel 386-25 CPU Chip ICC325	69^{95}
Superbaby External 40MB HDD w/ PS HDB040	359

PRINTERS

HP PaintJet XL	$799
Epson LQ-1010 PTE1010	199
Epson LQ-510 PTE510	169
Fujitsiu DL-4600 PTF4600	299
Okidata OL-830	899
TI XL 16ppm Laser Printer PTT100	1899
Newgen Turbo PS/400P PTN400	1599

CELLULAR PHONES

MOTOROLA:	
PC950 Flip Deluxe	$559
8000HX Handheld	229
Traveller Bag Phone GMS3230	189
2600 Bag Transportable	219
PANASONIC:	
VIP Phone HH-700	499
Flip Palm Phone EB-H60	549
NOKIA:	
101 Handheld	355
1000 Handheld	388
UNIDEN:	
CP6000 Handheld	199

FAX-MACHINES

Tote-Vision HF-200	$199
BellSouth 2501P	248
Panasonic KX-F50 w/ answering machine	369
w/CUTTER:	
Murata M1500	349
Panasonic KX-F90 w/ Answering machine	439
Brother Intellifax 700	479
Panasonic KX-F110 w/ answering machine	529
w/MEMORY:	
Panafax PD-2400 FAX2400	429
Brother Intellifax 650M	449
Panafax UF-128	498
w/INKJET:	
Panafax UF-312	999

MONITORS

Sony 1304s MTS1304	$545
Sony 1936 MTS1936	1799
NEC 1501 Multisync Plus MTN1501	399
KFC 1428 MTK1428	229

NOTEBOOKS

EVEREX 386s:	
Carrier SX20-2MB RAM 40HDD	$899
Carrier SX20-40HDD Fax Modem	899
Carrier SX20-4MB RAM 80HDD	999
Tempo LX SX20-60HDD	999
Carrier SX20-80HDD Fax Modem	1099
Carrier SL/25-4MB RAM 80HDD	1299
TI3000 386/20 30MB HDD IAT3040	699
Packard Bell 386/20 80MB Modem	1199

MULTIMEDIA

Magnavox CDD461	$199
Sony CD-Laser Library HDS7205	399
Thunder & Lightning Card ADS202	198
I/F for CD-ROM Drive HDS7205i	69

ACCESSORIES

MCA Printer Stand 80cl MCA1100	$19
MCA Printer Stand 132cl MCA940	29^{99}
MCA Paper Catch Basket MCA1450	18^{99}
MCA 34" Privacy Panel MCA5517	43^{99}
MCA 60" Desk MCA5000	172
MCA 72" Desk MCA5050	195
MCA 34" Desk MCA5200	125
MCA Square Corner Connector MCA5410	89
MCA Printer Stand Workstation MCA5300	99
MCA File Drawer MCA5540	95
MCA Cable Manager MCA3100	22^{99}
Teak 5 1/4" Disk Cabinet XFD64	9^{99}
Teak 5 1/4" Disk Cabinet w/lock XFD70	9^{99}
Teak Video Cassette Holder XVCR	9^{99}

Many items are clearance, demos or one-of-a-kinds. Some may be out-of-box and have no manuals. Most have original manufactuers warranties, certain restrictions may apply. Quantities are limited to stock-on-hand!

ACCESS
COMPUTER TECHNOLOGIES

2225 EL CAMINO REAL SANTA CLARA, CA 95050

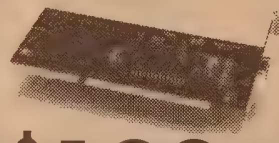
Not responsible for typos / Price subject to change w/o notice / Price good thru 6/27/93

ACCESS THE BEST

Always Friendly & Courteous Service!

BOCA RESEARCH INC

Made IN USA
5 YEAR WARRANTY



SUPERX VGA GRAPHICS CARD

- Supports Windows 3.1 up to 16 million colors-1MB RAM on-board.
- Up to 72Hz refresh rate provides flicker-free display
- Supports 132-column text mode in 16 colors

$109

9600/2400bps Fax Modem

- Includes FREE Mirror-FAX software
- 100% Hayes-Compatible

Internal/External $69/89

14.400/14.400bps Fax Modem

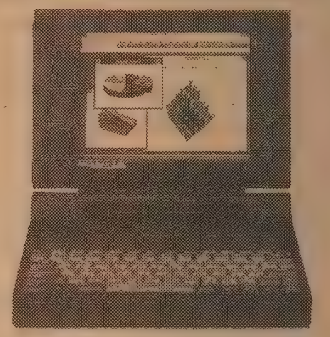
- Includes QuickLink II Fax software
- V.32bis(up to 57,600 throughput) V.42bis & MNP-5 data compression
- Group III send/receive • 100% Hayes-Compatible

Internal/External $199/239

NEC

UltraLite® Versa™ 25C

NEW!



Great Colors!

Great Features:

-Built-in Local Video Bus

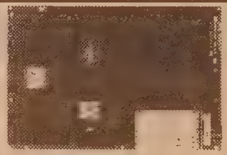
-Accepts PCMCIA Cards

-Removable Screen & HDD

$3795

- **INTEL** 486SL processor w/25MHz
- 4MB RAM exp to 10MB
- Large capacity 120MB hard drive
- Brilliant color SVGA TFT active matrix display
- 64KB cache for enhanced performance
- Upgradable to pen system
- Up to 5 hours of battery life

Other Models Available!



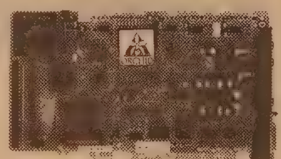
SUPERBOARD 486 VLB

*CPU not included

The Local Bus motherboard that delivers unsurpassed power w/ 256K Cache

two 32-bit Local Bus slots for high performance video or IDE controller • six 16-bit AT expansion slots • up to 32MB on-board RAM • OPTI chipset • surface mount design

DX33 / DX2-50 / DX2-66MHz	**$249**
DX50MHz	**269**
VLB IDE Controller	**79**



SOUND PRODUCER PRO

The most complete stereo sound system available for your IBM AT or compatiblesupport for four sound standards

- ships with many more audio utilitites, such as CD Player, Jukebox, Monologue, Orchid Voice Notes, and more
- includes free stereo speakers and a microphone

$169

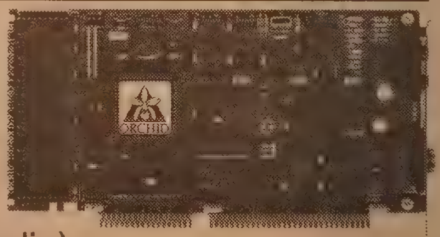
ORCHID

FAHRENHEIT VA

The scorchingly fast Windows accelerator with voice annotation capabilities

on-board graphics processor • resolutions to 1280 x 1024 • includes Orchid HyperDrive

• includes Orchid Voice Notes and microphone



Fahrenheit ISA VA 1MB.......... $199

Fahrenheit VLB VA 1MB..........209

(No Audio)

Fahrenheit ISA VGA 1MB 169

Fahrenheit VLB VGA 1MB 189

Sales Hotline **408-247-4444**

Technical Support 408-247-4990 Fax 408-247-4448

VALUES IN TOWN!

An Authorized CANON Reseller & Service Center!

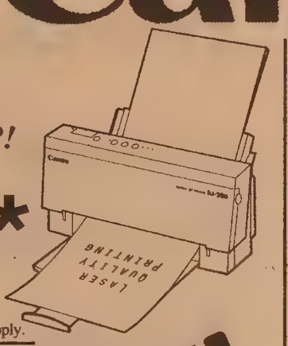
Canon

BJ-200 Laser Quality...

At an InkJet Price!

Takes Very Little Space!

4 out of 5 preferred the BJ-200 over HP!



- Prints up to 4ppm
- 7 resident fonts
- 100-page sheet feeder
- Hold up to 10 envelopes

$299*

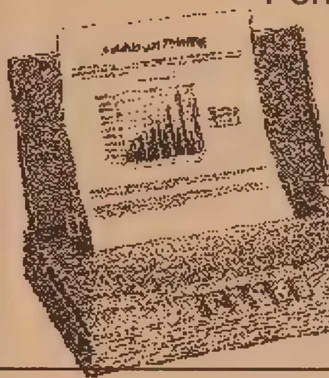
In-Store Price $349

*Price reflects a $50 end-user mail-in rebate. valid thru July 31, 1993. Some restrictions apply.

BJ-5

Portable Bubble Jet

Light Weight & Portable!
Perfect for any notebook or Laptop!



Carrying Cases $6.99
#PTC010G

Identical to BJ-10ex

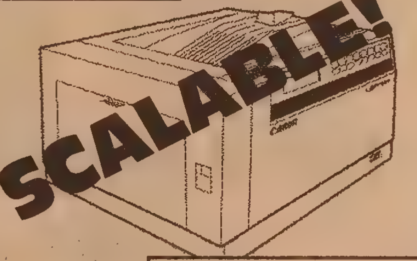
$189

- Prints up to 83cps
- Text & graphics up to360dpi
- Uses plain paper & transparencies
- 2-year warranty

LBP-4sx Laser Beam Printer

PCL-5!

Same as HP IIIp for $200 Less!

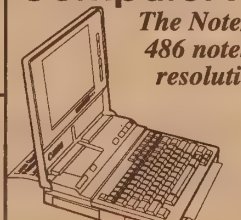


- 4 pages per minute
- 1MB RAM
- Auto emulation switching
- Printer sharing
- Quiet 42dbA operation

$699

Canon NoteJet 486... Computer And Printer In One.

The NoteJet™ 486 is a full-featured 486 notebook with a built-in high resolution Bubble Jet™ printer!



486SLC-25MHz
4MB RAM/180 MB HDD

$2999

Other Models Available

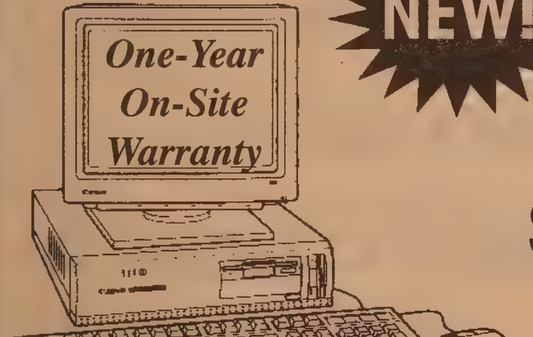
- Powerful Full-Featured 486 Notebook
- High Quality Bubble Jet™ Printer Built-In
- 2 PCMCIA Expansion Slots
- Built-In 10 Sheet Letter Feeder
- Preloaded DOS, Windows & NoteJet tutorial, and more...

Entire system w/battery Weighs Only 7.7 lbs.

Canon

INNOVA 486v Complete Desktop System w/ Monitor

NEW!



Fully Loaded Ready to Plug-n-Play!

$1799

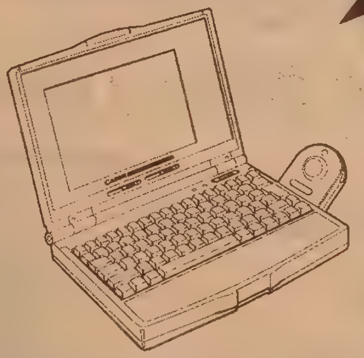
FREE DOS 6.0 UPGRADE!

- Intel Upgradable **80486DX/33MHz**
- **4MB RAM** exp. to 34MB
- 3.5" 1.44MB, 5.25" 1.2MB FDD
- **210MB** 16ms hard drive
- Super VGA VRAM Video card
- Canon **Color 14" SVGA .28mm**
- **Fax/Modem** (96/48 S/R,2400 data)
- PS/2 type mouse
- Mouse pad
- Factory installed software:
- MS-Dos 5.0
- MS-Windows 3.1
- MS-Works for Windows
- **1-Year** Roadside Warranty

INNOVA 386NX Notebook

NEW!

Fully Loaded Ready to Plug-n-Play!



FREE DOS 6.0 UPGRADE!

$1299

5.3 lbs. w/battery!

- AMD **386SXLV/25MHz**
- **4MB RAM** exp. to 8MB
- 3.5" 1.44MB floppy drive
- **60MB** 16ms hard drive
- 10", 64 gray scale backlit VGA
- **Fax Modem** (96/48 send /receive)
- 82/83 key keyboard
- Logitech trackman mouse
- Factory installed software:
- MS-Dos 5.0
- MS-Windows 3.1
- MS-Works for Windows
- Win-Fax
- **1-Year** Roadside Warranty

80MB HDD version 1399
120MB HDD version 1599

ACCESS COMPUTER TECHNOLOGIES

2225 EL CAMINO REAL SANTA CLARA, CA 95050

Not responsible for typos / Price subject to change w/o notice / Price good thru 6/27/93

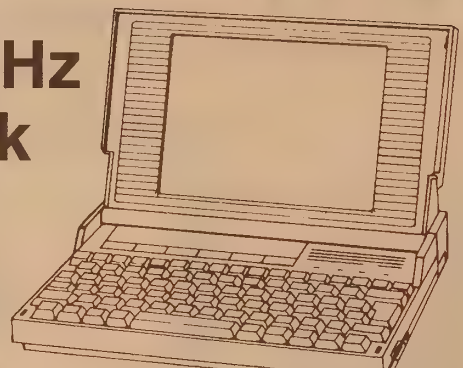
MOBILE COMPUTING...

Huge Selection of Notebooks!

SHARP®

PC-6785

386SL/25MHz Notebook



$1299 **Weighs 4.9 lbs!**

- **4MB RAM** exp. to 8MB
- **80MB** HDD
- Backlit LCD VGA
- Built-in trackball
- 4-level power manager
- Includes DOS 5.0
- PCMCIA card slot

7750 486DX-33 4MB / 124MB HDD **$2399**

JX-9500H

Laser Printer

$599

Fast 9 pages per minute!

Small footprint!

- 300dpi resolution
- 512K exp. to 4.5 MB
- 6 resident fonts
- HP II, Epson, IBM & Diablo emulation

Avanti 025

- Unlimited Technical Support • Toll-Free 800 Number
- 24 Hour Bulletin Board Service • Manufactured in USA

14.4bps DATA / FAX MODEM (Send & Receive)

486SLC/25MHz
4MB RAM
120MB HDD
$2595
NBB42120

486SLC/25MHz
4MB RAM
200MB HDD
$2795
NBB42200

- 4MB RAM exp. to 8MB • Fax/Modem • Piviting LCD Screen
- Mouse • DOS, Windows & More...

Sales Hotline 408-247-4444

Technical Support 408-247-4990 Fax 408-247-4448

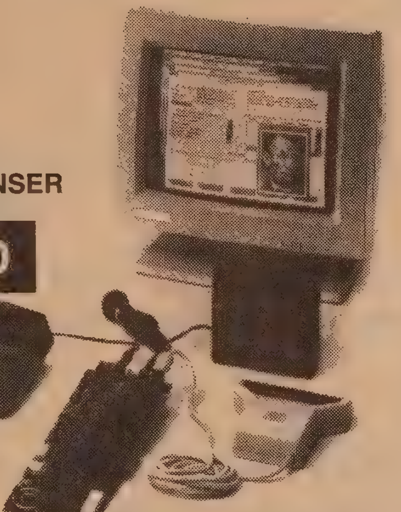
FOR PEOPLE ON THE GO!

An Authorized NEC Reseller!

THE PC BASED SMALL BUSINESS COMMUNICATIONS CENTER

- VOICE MAIL
- AUTOATTENDANT
- PREDICTIVE AUTO-DIALER
- BEEPER/PAGER NOTIFIER
- HAND SCANNER INTERFACE
- SEND/RECEIVE/FORWARD FAX
- AUTOMATIC DOCUMENT DISPENSER

by FAX on DEMAND



OPERATES IN BACKGROUND

EXPANDABLE up to 6 LINES

UPGRADABLE with CALLER ID

$449*

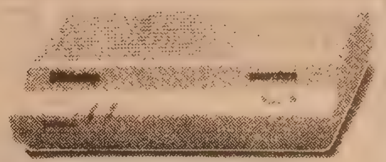
*includes Multi_ComBoard & software

Voice Mail only $239

Speaking Devices Corp. Demo line (408) 481-9205

USRobotics®

The Intelligent Choice in Data Communications



The Easy-To-Use Modem for People Who Think Like The Pros.

Sportster 14,400 Fax Modem
CCITT V.32 bis with V.42 bis

Internal $209
External 229

SUPER VALUE Lowest Prices Ever!

Sportster 14,400 Modem with V.42

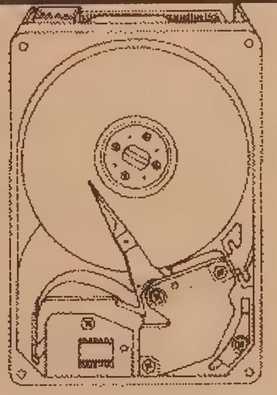
Internal $179
External 199

SUPER VALUE Lowest Prices Ever!

Maxtor Hard Drives

Reliable High-Performance Magnetic Drives to Meet Your Most Demanding Jobs!

Capacity	Speed	Price
120MB	15ms IDE	$209
213MB	15ms IDE	$267
240MB	15ms IDE	$319
340MB	15ms IDE	$388
535MB	12ms IDE	$858



QUANTUM

Capacity	Price
42MB	$117
240MB	$305

CONNER Hard Drives

Advanced Technology, High Performance, Quality and Value.

Capacity	Speed	Price
60MB	19ms IDE	$139
80MB	19ms IDE	$169
119MB	19ms IDE	$187
170MB	15ms IDE	$217
250MB	12ms IDE	$319
513MB	12ms IDE	$749

ACCESS
COMPUTER TECHNOLOGIES

2225 EL CAMINO REAL SANTA CLARA, CA 95050

Not responsible for typos / Price subject to change w/o notice / Price good thru 6/27/93

COME BY AND VISIT OUR

Name Brand Multimedia!

CREATIVE

CREATIVE LABS, INC.

EDUTAINMENT CD
LOOM

EDUTAINMENT CD™ 16 Upgrade Kit

- Sound Blaster 16 Sound Card
- High performance Internal CD-ROM drive
- Stereo Speakers
- Bundled Software: Toolworks' Encyclopedia, The Animals, Lucasfilm Games', Secret Weapons of Luftwaffe, Secret of Monkey Island, Loom; Carmen San Diego, Sherlock Holmes and more...
- Windows 3.1 and MPC compatible

$579

MEDIA VISION NEW!

FUSION CD 16

SUPER BUNDLE!

FUSION CD 16

Internal CD-ROM System Including:

PC Multimedia PC

- SONY internal CD-ROM Drive
- 4 Top CD Library Titles
- Pro Audio Spectrum 16 Sound Card
- Two Labtec Stereo Speakers
- And More...

$499

MULTIMEDIA KITS, CARDS & ACCESSORIES

CREATIVE

CREATIVE LABS, INC.

Sound Blaster Deluxe	$89
Sound Blaster Pro Deluxe	133
Sound Blaster Pro	169
Sound Blaster 16 ASP	233
Video Blaster	328
Multimedia Starter Kit Internal	377
Multimedia Starter Kit External	439
Discover CD 8 Bit Internal Kit	409
Discover CD 16 Bit Internal Kit	499

MEDIA VISION

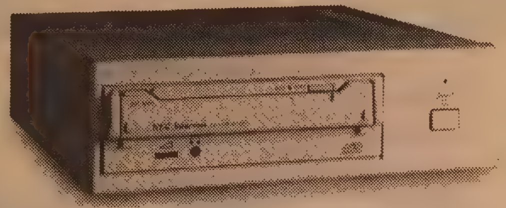
Pro Audio Spectrum 16	$189
Thunder & Lightning Card	219
GALLANT	
Microphone	13
DISCWASHER	
Amplified Stereo Speakers	24
TELETEXT International	
Teletext Video Data Decoder Board	169
ORCHID	
Sound Producer Pro w/ Speakers	169

Sales Hotline 408-247-4444

Technical Support 408-247-4990 Fax 408-247-4448

HUGE MULTIMEDIA AREA!

Choose Your Own & Save!



CD-ROM DRIVES

NEC

SCSI CD-ROM Drive CDR-84 Internal 280ms transfer speed	$499
SCSI CD-ROM Drive CDR-74 External 280ms transfer speed	599

PANASONIC

CD-ROM Drive 522 Internal 380ms transfer speed	259

SONY

CDU31A CD-ROM Drive Internal 490ms transfer speed	229

TEXEL

DM-3024 CD-ROM Drive Internal 265ms transfer speed	449

Hundreds of CD-ROM Software to Choose From... For Example:

Amanda Stories	$73
Annabel's Dreams	119
Animals 1.0	29
Beauty & the Beast	26
Bring the World to Your Senses	17
CIA World FactBook	38
Composer Quest	39
Compton's MPC Encyclopedia	99
Desert Storm	29
Dictionary of the Living World	48
Family Choice Britanica	38
Family Doctor	37
Family Education Collections	33
Audubon Mammals	89
Great Cities of the World vol. 1	31
Great Cities of the World vol. 2	31
Library of the Future 1st	81
MacMillian Dic. for Childern	65
Electronic Library of Art vol.1	43
WINWARE vol 1 & 2	29
Mavis Teaches Typing	37
Microsoft Bookshelf	79
Nat'l Geographic Mammals	43
Mixed Up Mother Goose	35
Playing with Language English	42
Playing with Language French	42
Playing with Language German	42
Playing with Language Japanese	42
Playing with Language Spanish	42
Presidents	189
TIME Almanac 1991	$38
Time Table of History	29
Toolworks Groliers New Encyclopedia	99
USA Wars: Civil Wares	63
USA Wars: Lorea	63
USA Wars: WW II	63
USA Wares: Vietnam	63
US Atlas/ World Atlas	25
US Atlas & Automap	45
US History	49
Vital Signs	139
Wild Places	28
World Atlas v3.2	28
World View	28
American Business Phone Book	28
Business & Economic Atlas	38
Holy Bible	38
DTP Pro	29
Shakespeare	43
Jets & Props	35
Lotus 1-2-3	119
Sound Library	38
Marketing Master 1992	28
Media clips 4 pack	77
Microsoft Works	79
Ocean Digital Imagery vol. 1	49
PC Graphic & Sound Demo	26
Sports Best	28
Publish It 2.0	43
Battle Chess Enhanced	$43
Carmen San Diego	37
CD StoryTime	27
CD Game PackII	39
Arthur's Teacher Trouble	38
Arthur's Star for Windows	78
Chessmaster 3000	35
Guiness MPC Disk of Records	38
Jones in the FAst Lane	33
King's Quest V	33
Loom	33
Macromedia Action for Windows	47
Microprose Collection on CD	39
Monkey Island	34
PC-SIG 10th Edition	38
Peter and the Wolf	25
Reference Library	43
Secret Weapons of Luftwaffe	41
Sherlock Holmes Consulting Det.	33
So Much Shareware I	19
So Much Shareware II	26
Shareware Gold II	38
Space Quest IV	39
Stellar 7	33
Total Baseball	57
Whale of Tale	109
Wing Commander & Secret Mission	45
Wing Commander & Ultima V	41
Wizard MPC	23

ACCESS
COMPUTER TECHNOLOGIES

2225 EL CAMINO REAL SANTA CLARA, CA 95050

Not responsible for typos / Price subject to change w/o notice / Price good thru 6/27/93

HUNDREDS OF

COMPONENTS GALORE!

CPU COOLING FAN

Increase performance and extend the life of your CPU!

$19.95

#ICFAN

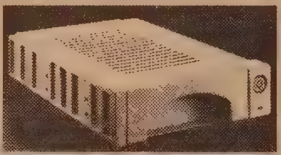
FLOPPY DRIVES

	by MITSUMI
3.5" 1.44MB	$54.95
5.25" 1.2MB	$59.95

MOBIL HDD RACK

For all 3.5" hard drives

Allows easy installation & removal of hard drives. The perfect way to protect all your valuable data!



$49

#HDA001

SIMM MODULES

1MB x 9 60ns	$36
1MB x 9 70ns	34
1MB x 9 chip module	39
256K x 9 70ns	14
4MB x 9 60ns	169
4MB x 9 70ns	149

MATH COPROCESSORS

intel

Instant acceleration for your power applications.

80387SX	$88
80387DX	88
80387SL	88
80487SX	499

CPUs

486-50 DX2	$469
486-66DX2	599
486SX-25	169
486-33	339
486-50	459
386-33	89

POWER SUPPLIES

230Watt	$69
200Watt	69
230/250Watt	89
300Watt	119

CASES

Baby Desktop 200W	$89
AT Full Desktop 285W	129
Full Tower 220W	129
Mini Tower 200W	99
Super Tower 300W	249
1Bay External 42W	99

I/O & IDE CARDS

AT I/O Parallel/Serial	$19
IDE 2S/P/G Controller	29
VLB IDE 2S/1P/1G	79
IDE Controller w/out I/O	19

ETHERNET CARDS

EtherLink III

Parallel Tasking Network Adapter by 3COM

- Featuring 3Com's New Parallel Tasking Architecture
- Remote Manageability with LinkWatch SNMP software
- Lifetime Warranty

16-bit coaxial cable	$139
10BASE-T	139

UPS'

Prevent Lost Data... With an Uninterrupted Power System

550VA standby w/Novell adapter	$299
300VA Model 20	349
1250VA w/ Indicator	699

SCSI CONTROLLER

The SCSI Master

Adaptec ISA-toSCSI High-performance Bus Master Host Adapter Kit

$289

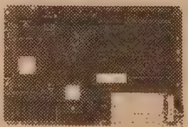
- Features the AHA-1542 SCSI host adapter
- Includes SCSIselect configuration firmware utility
- Provides support for HDD, removable, MO & CD-ROM SCSI peripherals
- Includes Adaptec's I/O operating environment support for DOS, Windows, OS/2, Netware and UNIX.

MOTHERBOARDS

ALARIS 486SLC2 50MHz

VESA Standard Local Bus!

Includes CPU! $369



Alaris SLC2 Board Features:

- 486SLC2 processor w/ 16KB internal cache
- 0K exp. to 16MB RAM on-board
- 64KB External RAM cache exp. to 128KB
- 2 VESA Local-Bus slots
- 7 16-bit & 1 8-bit ISA slots
- Mini-AT footprint • 3 year warranty

Manufactured In USA by IBM

GENOA 486

VESA Standard Local Bus!

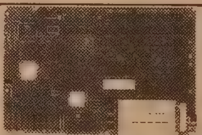
$249

- 256K cache
- 0K exp. to 32MB RAM on-board
- Pentium Chip socket
- 2 VESA Local-Bus slots
- 4 16-bit & 2 8-bit ISA slots
- Mini-AT footprint • 2 year warranty

*CPU not included!

CHOOSE YOUR SPEED

33,50, or 66MHz... by Jumper!



SILICON STAR 486

VESA Standard Local Bus!

$169

- 256K cache
- 0K exp. to 32MB RAM on-board
- 2 VESA Local-Bus slots
- 5 16-bit ISA slots
- Mini-AT footprint • 1 year warranty

*CPU not included!

Sales Hotline 408-247-4444

Technical Support 408-247-4990 Fax 408-247-4448

SPECIAL BUYS!

SUPER VALUE DEALS!

VIDEO SEVEN

VGA CARD

800x600 256K

$25

6-OUTLET POWER STRIP

$4.99 XSP022

2PC. PRINTER STAND **$2.99** XTP004

FAX PAPER

49ft. Roll 2pk. #FAP482	**$3.99**
98ft. Roll 4pk. #FAP984	**$8.99**

FACE *LIFT* Software
for Windows

The fast, easy way to scale, manage and enhance fonts under Windows!

$9.95

#SSW861

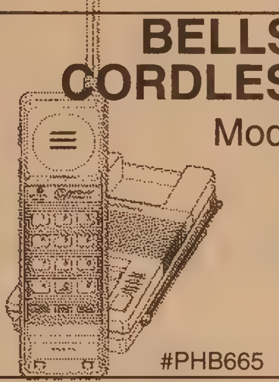
5.25" 1.2MB DS/HD 25pk. Formatted... **$11.99**

100% ERROR FREE

3.5" 1.44MB DS/HD 25pk. Formatted... **$16.99**

BELLSOUTH CORDLESS PHONE

Model 665



#PHB665 **$39.95**

MICROSOFT ACCESS Software

Limited to Stock On-Hand!

#SSH023 **$89**

SILICON SPORTS

Mouse Pads PMS112	$4.99
Keyboard Drawer Pads PMS120	5.99
Puzzle Track Pads PMS115	9.99
Wrist Pads PMS118 from	11.99
Notebook Pads PMS122	22.99

DUST COVERS

Epson W/C printer PXE74774	$3.99
80 Column printer COV300	4.99
Full Tower system COV800	7.99
Mini Tower system COV600	9.99

COMPUTER PAPER

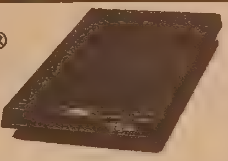
20# white 500 sheets ...	$6.99
ASTROBRITE COLORS:	
Gamma Green (24# 100 sheets)	7.99
Mars Magenta (24# 100 sheets)	7.99
Re-Entry Red (24# 100 sheets)	7.99
Lunar Blue (24# 100 sheets)	7.99
Solar Yellow (24# 100 sheets)	7.99

THE NORTON ANTIVIRUS™

Version 2.1

#SST213T **$39**

Hayes®



2400bps External Modem

includes Software!

$39

RHINO™ Notebook/Laptop Carrying Cases

More Than 12 Models In Stock!

HARD PROTECTION/SOFT BAG

From... **$39.95** Model AC-21

MADE IN USA P.C. LOGIC

24/9600bps Internal Fax Modem

- 2400bps Data
- 9600bps send/receive Fax
- Quick Link II software

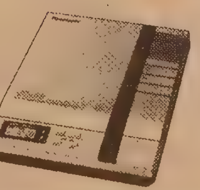
3 year warranty

FREE Kit PRODIGY. Interactive Personal Service

$69.99

Panasonic KX-T1450

Automatic Telephone Answering System



- Dual standard cassette
- Extended OGM
- Auto Interrupt
- Auto-Logitc operation
- And more...

$66.99

ACCESS
COMPUTER TECHNOLOGIES

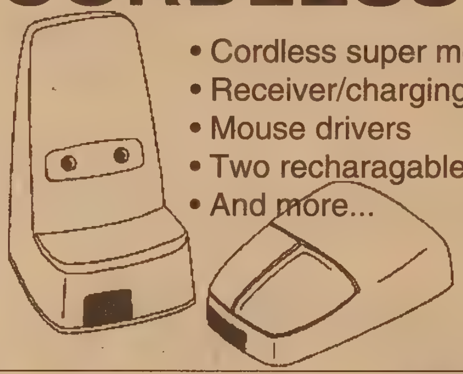
2225 EL CAMINO REAL SANTA CLARA, CA 95050

Not responsible for typos / Price subject to change w/o notice / Price good thru 6/27/93

A HUGE SELECTION OF

Sales & Service Open 7 Days a Week!

CORDLESS MOUSE by Z-NIX



- Cordless super mouse
- Receiver/charging stand
- Mouse drivers
- Two recharagable batteries
- And more...

$45

MICROSOFT MOUSE

SERIAL VERSION

#PMS060T

$59

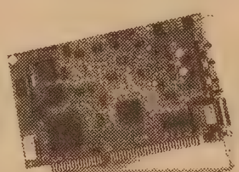
SoundMan™ 16

16-Bit CD-Quality Sound Card

LOGITECH

BONUS: FREE Game from Accolade w/ purchase*!

NEW!



- 16-bit stereo playback & recording
- Sampling/playback rate 2KHz-44KHz
- Yamaha OPL-3 stereo synthesis chip w/ 4 operators generating 20 voices
- Stereo amplifer output at 4 watts channel
- And more...

$139

#ADS117

*Certain restrictions apply. Valid thru 8/31/93.

ETERNASCAN HANDHELD SCANNER

256 GRAY SCALE... $99

#PME200

- Real-time display•100-400 dpi resolution
- B/W, dithered, & gray scale modes•TIF, PCX, MSP, CUT, IMG formats
- Scanned image is independent of monitor display•Includes EZimage software & development tool kit

COLOR SCANNER... $269

#PME200C

- Real-time display•100-400 dpi resolution
- Color, B/W, dithered color, & gray scale modes•TIF, PCX, MSP, CUT, IMG formats
- Includes EZimage software, Photo for Windows & development tool kit

LOGITECH

MouseMan™

High Resolution Serial PS/2 Mouse

Don't be caught with a dying mouse!

- 400dpi resolution
- Three programmable button flexibility
- New ergonomic design
- Enhanced MouseWare™ Utilities
- Windows™ 3.1 compatible
- IBM PC, XT, AT, PS/1, PS/2 compatible

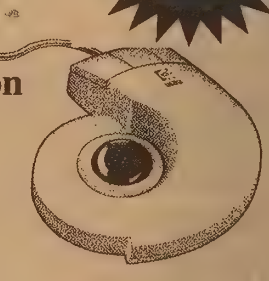
#PMS015

TrackMan™

High Precision Stationary Mouse

NEW!

Designed for Comfort and Precision



- Three programmable button flexibility
- New ergonomic design
- Enhanced MouseWare™ Utilities
- Guaranteed to work with all Windows™ and DOS applications

#PML100S

Prices too Low to Advertise!

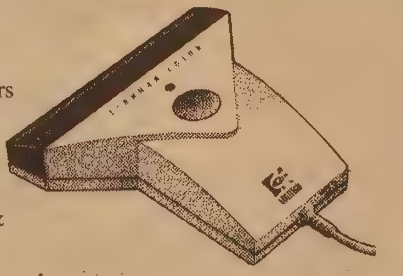
Call Us!

ScanMan™

Hand-Held Color Scanner

Add the Impact of Color!

NEW!



- 24-bit hardware, captures 16.8 million colors
- Virtual page scanning-auto stich, multiple scans together
- Total system calibration-color matching
- Saves images in TIFF, BMP, PCX, JPEG & EPS formats
- Supports Windows™ (OLE) & TWAIN protocols

#PMS254

TrackMan™

Portable Mouse

Superior Performance

See and feel the difference

- Small, lightweight and portable, three-button support
- Made to travel, includes sturdy casing & padded case
- Right or left hand w/ re-routable cable
- One piece simple spring clamp installation
- LogiPanel programming buttons in Windows
- Limited lifetime warranty

#PML100P

Sales Hotline 408-247-4444

Technical Support 408-247-4990 Fax 408-247-4448

MONITORS & CARDS!

Name Brands...At Low Low Prices!

Panasonic
Office Automation OA

14" C1381i
SVGA Monitor

IBM & MAC compatible!

$329

- Up to 1024x768
- Horizontal scan rate 30-37 KHz
- Vertical scan rate 50-90Hz
- .28mm dot pitch
- Tinted, Non-glare Black Matrix screen

1395	**14" 1024 x 768**	**$469**
1795E	**17" 1280 x 1024**	**1295**
1991	**20" 1280 x 1024**	**1599**

GRAPHIC•CARDS

ATi

ATI Ultraplus 1MB	**299**
ATI Ultrapro 2MB	**569**

DIAMOND
Computer Systems, Inc.

Stealth 24 VLB 1MB	**249**
Viper VLB 2MB	**429**

Genoa
SYSTEMS CORPORATION

8500 VLB 1MB	**$189**

PC LOGIC

VColor 1MB SVGA	**$95**
VColor XL 1MB	**$109**

TOSHIBA

17" SVGA Monitor

High Resolution Flat Square!

MAC Compatible!

SUPER VALUE!

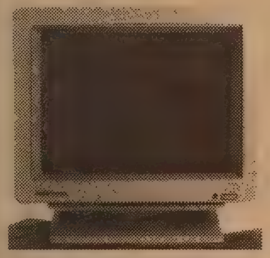
$599

P17CU01

- 1024 x 768, .31mm dot pitch
- Scanning frequency up to 57KHz
- Auto mode selection (9 preset/9 manual)
- Corner screen legibility w/ FS color tube

IMPRESSION™

14" SVGA Monitor



SUPER VALUE!

$329

IM1448M

- Up to1024X768 , .28 mm dot pitch
- Non-Interlaced

IM1439SV	**1024 .39**	**$229**
IM1428SV	**1024 .28**	**289**

CORNERSTONE™

17" SVGA Monitor

$1150

Identical to NEC 5FG for $200 Less!

- Up to1280x1024 , .28 mm dot pitch
- 27-79 kHz scan frequency
- Analog RGB input

ViewSonic™ 17

17" SVGA Monitor

NEW!

$1250

ViewMatch™ Color Control

- Up to1280x1024 ,76Hz refresh
- .28mm dot pitch
- 30-82 kHz scan frequency
- Analog RGB input

15" 1280 x 1024	**$688**
20" 1600 x 1280	**1950**

ACCESS
COMPUTER TECHNOLOGIES

2225 EL CAMINO REAL SANTA CLARA, CA 95050

Not responsible for typos / Price subject to change w/o notice / Price good thru 6/27/93

The Intelligent Choice...

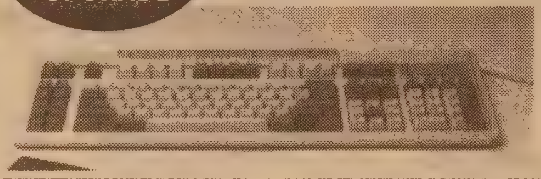
Serving the Community Since 1987!

Maxi Switch

ProKEY 124 is more than just a keyboard...it's a personal productivity enhancement tool.

PC WORLD TOP 20 UPGRADE

3 YEAR WARRANTY!



$99

101Enhanced Keyboard	$29
101 Keytronic keyboard	49
Focus 8000/9001	59/89
Fujitsu 4700 keyboard	79

NORTHGATE COMPUTER SYSTEMS, INC.

PS/2, AT&T, Tandy Available

OmniKey™ Keyboards

101S / 101NI	$59/79
102	79
UltraT / UltraF	99
Skin Protectors	19.95 each

ProXellent©

Only ProXellent Programmable Keyboards Give You ON-SCREEN Reprogramming.

NEW WINDOWS Version!

$99 (white only)

- ProXellent's PK-1 application software on a 5.25" floppy.
- Original Alps click/tactile mechanical keys for superior feel.
- Removable software templates featuring Word Perfect, Lotus 1-2-3, Dbase IV, MS-Word & one blank template

AC-LINE CONDITIONER

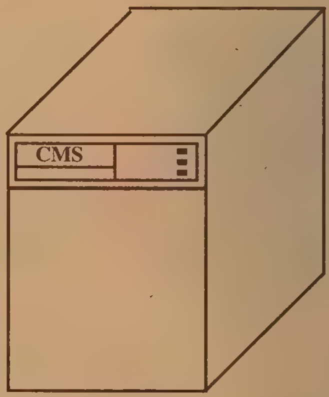
by CMS

Authorized Dealer

Provides a clean steady power level!

Eliminates surges & spikes!

Built-in surge protection!



UC Listed • FCC Approved

300 VA	$49	1000 VA	$169
500 VA	89	3000 VA	229

Sales Hotline 408-247-4444

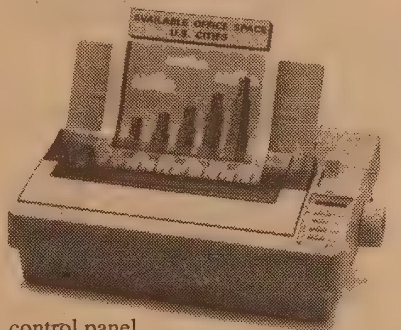
Technical Support 408-247-4990 Fax 408-247-4448

ACCESS COMPUTER!

...Personal Service, Value & Pricing!

CITIZEN™

The Best In The Business.
Featuring Color On Command™



$169

GSX-130

- 24-pin printer • 180cps, 60cps LQ
- 5 built-in fonts • Fontlocking feature
- Paper parking • Features Command-Vue II™ control panel
- Optional Color On Command™ • 2 year limited warranty

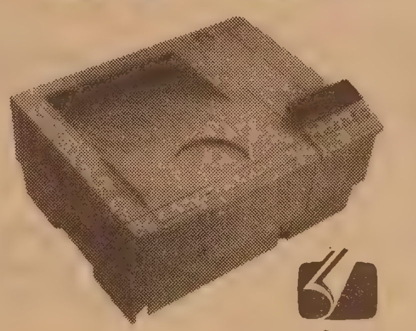
Color On Command Option: $49

GSX-140 plus 24-pin 220cps, 6 fonts	$269
GSX-230 24-pin 270cps, 8 fonts	259
GSX-240 24-pin 300cps, 13 fonts	309

NEC

Get The Perfect Deal On The Laser Printer That's A "Perfect 10"

MAC Compatible!



POSTSCRIPT™

$1049*

IN-STORE PRICE $1299

Silentwriter® 95f

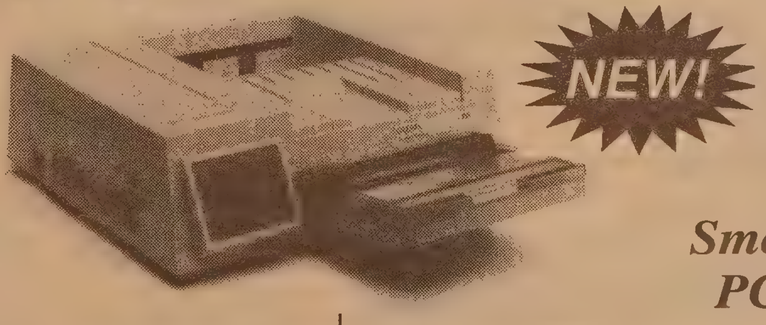
- 6 PPM, 2MB RAM exp. to 5MB
- 35 scalable Adobe fonts
- 14 bitmap & 8 scalable HP fonts
- HP LaserJet III w/PCL-5 emulation
- Auto Interface Monitoring for easy sharing

Silentwriter is a registered trademark of NEC Technologies, Inc.

*Price reflects a $250 end-user mail-in rebate, some restrictions apply; valid thru June 30, 1993.

OKIDATA® *LED Page Printers*

OKI OK!



NEW!

OL400.

PC Magazine® Editors' Choice.

OL810.

With OKI Smoothing Technology™ PCL-5 Scalable Fonts

$579

- Industry's best warranty: 5 years on printhead, 1 year parts/labor on printer
- PC Magazine Editors' Choice- June 12, 1990
- 4ppm, 300dpi: crisp blacks, publication quality output
- More standard typefaces/fonts than LaserJet™ IIP
- High-capacity 200-sheet paper tray included
- HP® Series II compatible
- Design fits any desktop

CALL

- Industry's best warranty: 5 years on printhead, 1 year parts/labor on printer
- OKI Smoothing Technology™ for 1200dpi apperance
- 8ppm, 300dpi: crisp blacks, publication quality output
- 1 MB RAM exp. to 5MB, 13 HP III scalable fonts
- High-capacity 200-sheet paper tray included
- HP® Series III compatible
- Optional RS-232 Serial interface

9-PIN

•ML-320/321	300cps	$319 /459
•ML-520/521	NEW! auto form sensing	CALL
•ML-3410	Fast 550cps! 8-part forms	1299

24-PIN

•ML-380	192cps, 63cps	229
•ML-590/591	auto form sensing	469/599
•ML-393+	Fast 520cps Wide Carriage	949

ACCESS

COMPUTER TECHNOLOGIES

2225 EL CAMINO REAL SANTA CLARA, CA 95050

Not responsible for typos / Price subject to change w/o notice / Price good thru 6/27/93

A HUGE SELECTION

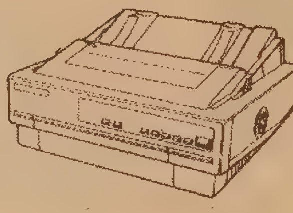
Thousands of Printers in Stock!

EPSON®

WHEN YOU'VE GOT AN EPSON,
YOU'VE GOT A LOT OF COMPANY™

LQ-570+ ESC/P2™ LQ-1070

EPSON SCALABLE FONTS • ENHANCED GRAPHICS



$239

- 24-pin, 315cps
- 12 built-in fonts
- 2 year warranty

$359

- 24-pin, 315cps
- **WIDE Carriage**
- 2 year warranty

DOT MATRIX

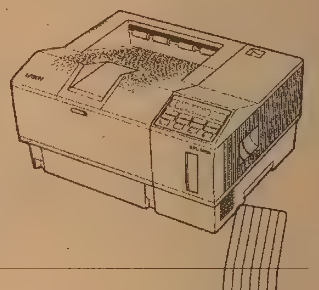
LQ-870	$469
LQ-1170	599
LQ-2550 400cps	899

LX-810 *9-pin 80 column*	169
FX-870/1170 *NEW*	279/359
DFX-5000 *9-pin 530cps*	1299

EPL-8000

TWICE AS FAST AS HP IIIP (4ppm) FOR LESS!

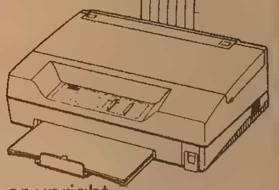
Great Features Such as:
-Scalable Fonts
-Printer Sharing
-And More...



$899

- 10ppm
- 1MB RAM exp. to 7.5MB
- PCL-5, 13 scalable fonts
- Includes RITech for crisp, sharp images
- Built-in printer sharing
- 2-year warranty

ActionPrinter AP-3250 24-Pin



$179 **Ideal for home use! Easy Operation**

- Innovative, space-saving case design • Operates flat or upright
- 50-sheet 8 1/2" x 11" paper tray • scalable fonts
- Simple two-button control panel • Quiet operation
- 2-year limited warranty

AP-2250 9-pin version $129

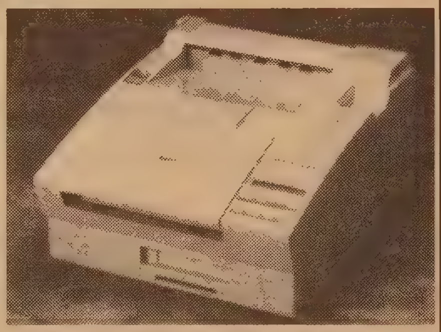
EPSON®

WHEN YOU'VE GOT AN EPSON,
YOU'VE GOT A LOT OF COMPANY™

ActionLaser 1000

NEW!

$669

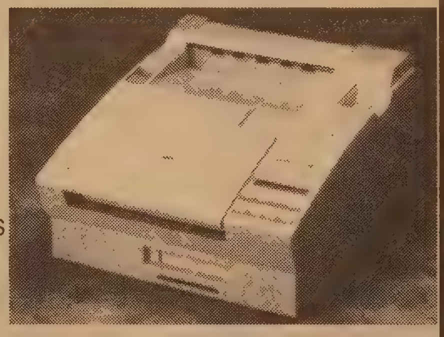


- 6ppm
- 512K Ram exp. to 6.5MB
- 14 standard fonts
- 1 cartridge slot
- 150-sheet universal tray
- HP IIP, PCL-4 emulation
- 2 year warranty

ActionLaser 1500

Scalable!

$699



- 6ppm
- 1MB Ram exp. to 5MB
- 14 resident, 13 scalable fonts
- 1 cartridge slot
- 150-sheet universal tray
- HP III/IIIsi, PCL-5 emulation
- 2 year warranty

NEW INK JET!

STYLUS 800 INK JET PRINTER

The look of laser printing at an affordable price.

Replacement Ink Cartridge
PTE800C
$19.95

$349

- Fast 150cps • Crisp 360 dpi laser quality
- 7 typefaces w/ 4 scalable fonts • Quiet 45dBA
- Compact footprint • 100-sheet plain paper tray
- Prints envelopes with ease • 2 year warranty

***Sales Hotline* 408-247-4444**

Technical Support 408-247-4990 Fax 408-247-4448

OF PRINTERS!!!

An Authorized PANASONIC Reseller & Service Center!

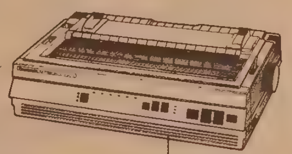
PRINTER RIBBON
by PANASONIC
KX-P115
$5.99
For: KX-P1180/
1191/1695/2150

Panasonic
Office Automation

SAVE up to $150

2-YEAR WARRANTY

KX-P1123
$169
- 24-pin
- 240cps, 63cps LQ
- 7 built-in fonts
- 2 year warranty



KX-P1624
$259
- 24-pin
- 192cps, 63cps LQ
- 7 built-in fonts
- 2 year warranty

KX-P1124i	24-pin ,300cps, 8 built-in fonts	$199
KX-P2123	24-pin, 240cps, color capable	199
KX-P2180	9-pin, 240cps, quiet series	139
KX-P2624	24-pin, 300cps, quiet series	299

*THESE ARE FACTORY REMANUFACTURED & FULLY GUARANTEED

HEWLETT PACKARD

DeskJet 500		$399
DeskJet 500 Color		529
DeskJet 550C		709
IIP*Plus*	4ppm, PCL-4	789
IIIP	4ppm, PCL-5	888
4L	*NEW!*	729
4	8ppm, 600dpi, PCL-5	1375
4M	6ppm PostScript MAC/IBM	1949
IIID	8ppm, dual tray, PCL-5 *NEW!*	2295
4Si	17ppm, auto interface switch	3299

Toner Cartridges

II/III	IIP
$49*	$79
PXA201	PTA208

*remanufactured

COLOR PRINTERS

PaintJet	699
PaintJet XL300	2299

SCANNERS

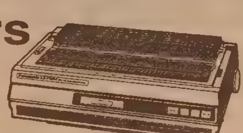
ScanJet IIP with interface	829
ScanJet Color with Interface	1399

It doesn't Scream, ...
it whispers.

Panasonic
Office Automation

The *QUIET* Series Printers

Come Hear the Difference! **43.5 dBA!**



NEW!
KX-P2023
- 24-pin matrix, Non-color
- 240cps, 80cps LQ
- 7 fonts, (43.5 dBA)
- 2 year warranty

$199

KX-P2123
- 24-pin letter quality
- 240cps, 64cps LQ
- 6 fonts, paper parking
- 2 year warranty

$238

KX-P2124
- 24-pin letter quality
- 320cps, 85cps LQ
- 8 fonts, 360x360
- 2 year warranty

$319

KX-P2180
- 9-pin matrix
- 192cps, 38cps NLQ
- 6NLQ fonts, (45 dBA)
- 2 year warranty

$164

2100 Series Color Option Available $49.95

KX-P2624
- 24-pin letter quality
- 300cps, 100cps LQ
- 11 fonts, 26K buffer
- 2 year warranty

$378

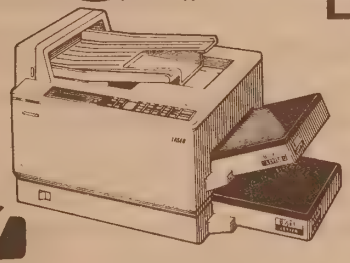
DOT MATRIX

KX-P1124i	24-pin, 300cps, 8 fonts	$269
KX-P1695	9-pin, 330cps wide carriage	379
KX-P1624	24-pin, wide carriage	348

KX-P4455 PostScript Laser

Accessories for 4455/4450i

Legal Tray	49
Envelope Tray	69
Toner	39
Drum Unit	149
Developer	99



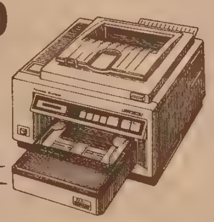
POSTSCRIPT

$1666

- 2MB RAM exp to 4MB
- Two 250 sheet paper trays
- 39 PostScript fonts • 11PPM

KX-P4450i $999

KX-P4430
Laser Printer

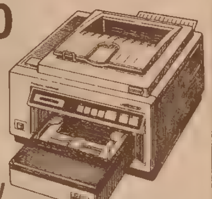


Scalable Fonts!

$699 NEW LOWER PRICE!

- 1MB RAM exp to 5MB
- **PCL-5 Scalable**
- 300 dpi resolution • 5 PPM
- 200 sheet paper capacity

KX-P4410
Laser Printer



FREE Adobe Type Manager!

5ppm!

$599 NEW LOWER PRICE!

- 512K RAM exp to 4.5MB
- 200 sheet paper capacity
- 300 dpi resolution • 5 PPM

ACCESS
COMPUTER TECHNOLOGIES

2225 EL CAMINO REAL SANTA CLARA, CA 95050
Not responsible for typos / Price subject to change w/o notice / Price good thru 6/27/93

continued from page 128

Worldwide mailing lists tend to show constant activity, because it is always the middle of the day (or the middle of the night, depending on the phase of the hacker) somewhere in the Matrix.

Time zones are not a problem for email or file transfer. When the sender posts mail, it gets queued for transfer, and will arrive whether the recipient is actually there at the time or not. A sender in Tokyo can queue mail at 5 pm Tokyo time, and it will probably be read in San Francisco the next morning (nine hours later). The recipient in San Francisco has almost all day to respond in time to get mail back to Tokyo by the original sender's next working day. This tends to lead to a full day (from the viewpoint of either party) for turnaround on an exchange of messages. However, dependable daily turnaround is usually better than chancey telephone tag that may result in no turnaround at all.

Worldwide mailing lists tend to show constant activity, because it is always the middle of the day (or the middle of the night, depending on the phase of the hacker) somewhere in the Matrix.

LANGUAGE BOUNDARIES

Melbourne may be only an hour from Tokyo in timezones, but it is thousands of years distant in language history. A telephone conversation between Tokyo and San Francisco often encounters both time and language problems. The languages are still different with email, but those who do not have English as a native tongue can take time to organize and translate thoughts.

I recently did a report for a Japanese client. Everything after the handshake in a restaurant in Tokyo took place over the networks, from specifications to draft to final copy, including tables and figures in PostScript. We could have used fax and telephone, I suppose, but it would have been so painful that we wouldn't have.

MAILING LIST LANGUAGES

Most worldwide mailing lists are conducted in English. Some of them have large majorities of people with other native languages. Curiously enough, it is usually the nonnative English speakers who insist the most on the use of English, because they don't want to have to deal with somebody else's native tongue, which they almost surely won't know as well as English.

FAX / MODEM
Direct from Wholesaler
Proven Reliability
5 Year Warranty

For WINDOWS: SEND/RECEIVE FAX MODEM + WINFAX & DOS Softwares

SPECIAL OFFER
MODEL 9648AHWIN (Internal) with WINFAX
FAX S/R 9600/4800bps, MODEM 2400bps MNP 5 Retail $169 $54
MODEL 9624HWIN (Internal) with WINFAX
FAX S/R 9600/9600bps, MODEM 2400bps MNP 5 Retail $189 $64

INTERNAL
MODEL 2400H MODEM SPEED 2400bps
MNP 5 V.21,V.22,V.22bis,V.23, Hayes Modem Compatible, DOS softwares Retail $79 $27
MODEL 9624SH FAX Send 9600bps
MODEM speed 2400bps MNP 5 GIII FAX, Hayes Comp. DOS softwares Retail $89 $29
MODEL 9648AH FAX Send / Receive 9600bps/4800bps
MODEM speed 2400bps MNP 5 GIII FAX, Hayes Comp. DOS softwares Retail $129 $45
MODEL 9624H FAX Send / Receive 9600bps/9600bps
MODEM speed 2400bps MNP 5 GIII FAX, Hayes Comp. DOS softwares Retail $149 $55
MODEL 1414VH FAX Send / Receive 14400bps/14400bps
MODEM speed 14400bps MNP 5 V.32/V.42 GIII FAX Hayes DOS softwares Retail $449 $169

EXTERNAL
MODEL 9624VQE FAX Send / Receive 9600bps/9600bps
MODEM speed 2400bps MNP 5 V.32/V.42 GIII FAX Hayes DOS softwares Retail $189 $79
MODEL 1414VE FAX Send / Receive 14400bps/14400bps
MODEM speed 14400bps MNP 5 V.32/V.42bis GIII FAX Hayes DOS softwares Retail $459 $188

POCKET SIZE
MODEL 9624P FAX Send / Receive 9600bps/9600bps
MODEM speed 2400bps MNP 5 GIII FAX, Hayes Comp. DOS softwares Retail $199 $82
MODEL 1414VQP FAX Send / Receive 14400bps/14400bps
MODEM speed 14400bps MNP 5 V.32/V.42bis GIII FAX Hayes DOS softwares Retail $499 $249

☆ WINFAX or SuperFax for Windows w/Manual (Purchase with above product) $10/$5
☆ Model 3000B Phone/Fax/Modem/Answering Auto Switch Device uses for a Single phone line $59

YOKOHAMA Telecom Corp.
4095-M E. La Palma Ave.
Anaheim, CA 92807
Tel : 714 - 630 - 4061
Fax : 714 - 630 - 5069
Visit our office to see the WinFax Demo.
Call for Dealer Q'ty Discount
MON. - FRI. : 9:00AM TO 6:00PM
SAT. : 9:00AM TO 3:00PM
Price, availability and specifications subject to change without notice. No refund after 30 days.

ORDER FORM:
MODEL NO. x Quantity = Amount
x =
x =
x =
SUB-TOTAL =
CA Resident add Tax (x 0.0775) =
Shipping & Handling Charge = $4.00
GRAND TOTAL =
Send to: YOKOHAMA Telecom Corp.
P.O.Box 626 Atwood, CA 92601
Your Name:
Address
City State Zip
Tel:
☐VISA ☐MC OR INCLUDE CHECK $
Card No. Exp:
Sign.

PC WAREHOUSE

80 Locations Nationwide

You'll come for the price
You'll stay for the service

NOVELL Networks

Service
Consulting
Installation

SONY LASERLIBRARY

External CD-ROM Package
*Sound Blaster Pro
*Interface
*6 CD Titles
*SONY Speakers
$799
Model 7305

CD - ROM

Mitsumi 005s (350ms)....$199
SONY 31A Int.(490ms)..$229
SONY 541 SCSI Int.......$429
SONY 7211 SCSI Ext....$549
NEC 74 SCSI Ext.............$599
NEC 84 SCSI Int.............$449
Texel SCSI Int. (265ms)...$379
Toshiba SCSI Int 200ms..$479

Creative Labs

*Sound Blaster Pro......$139
*Video Blaster.............$339
* Sound Blaser 16ASP.$239
*Multimedia Upgrd.....$519

EPSON

AP-2250.........$119
LX-810..........$169
FX-870...........$279
FX-1170.........$359
LQ-570.........$239
LQ-870.........$469
LQ-1070.......$359
LQ-1170.......$599

Toshiba Notebook

T1800 (386sx/20 2MB 80MB HDD........$1249
T1850 (386sx/25 4MB 80MB HDD........$1279
T1850C (386sx/25 4MB 80MB HDD.....$1999
T4400c (486sx/25 4MB 200MB HDD....$3999
T4500c (486sx/20 4MB 120MB HDD....$3699

Kenitec Notebook

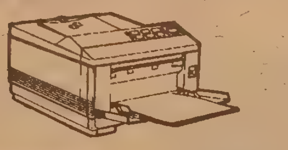
Special: 386sx-20 , 120MB......$1045

Models	80MB	120MB	200MB
386SX-25, 1MB	$1049	$1159	$1319
486SLC-25,4MB	$1309	$1419	$1599

LaserJet 4L

HEWLETT PACKARD

*High Quality 300dpi
*4 page per minute
*1MB memory
*HP PCL 5 language
$719



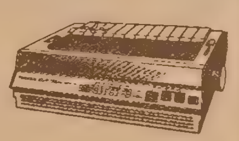
DeskJet 500...........$379
DeskJet 500C........$489
DeskJet 550C........$689
laserJet IIp+.........$769
LaserJet IIIp........$849
LaserJet 4...........$1349
LaserJet 4M.......$1859

LaserJet 4si...............$3099
ScanJet IIP..................$759
ScanJet IIC................$1359
PaintJet.......................$699
PaintJetXL................$1669
PaintJetXL300..........$2199
PaintJetXL300/PS.....$3199

Postscript...........................$349
Postscript w/auto..............$479
IIp/III/Legal Tray................$79
IIp/IIIp Env Tray.................$79
III Env Tray.........................$79
IIID Env Power Feeder......$269
IIp/IIp+/IIIp Toner.............$69
II/III/IIId Toner..................$79
4 Toner...............................$99
3si/4si Toner......................$119
1/2MB for IIp/IIIp/III...$69/$99
1/2MB for II/IID.........$85/$115
2/4MB for IIIsi/4.........$99/$169
AppleTalk/Font cartridge.$Call

Panasonic

Office Automation OA



KX-P1123.....$185
KX-P1124i....$279
KX-P2023.....$195
KX-P2123.....$235
KX-P2124.....$315
KX-P2180.....$165
KX-P1624.....$345
KX-P2624.....$369

KX-P4410.......$599
KX-P4430.......$699
KX-P4450i......$999
KX-P4455.....$1665
KX-PCK11.......$52
KX-PT12..........$55
KX-P37.............$95

386SX-33	386DX-33/40	486DX - 33	486DX - 33	486DX - 50	486DX2-66
*386SX- 33 CPU	*386DX-33/40 CPU	*Intel 486DX-33 CPU	*Intel 486DX-33CPU	*Intel 486DX-50 CPU	*Intel 486DX2-66 CPU
*1-16MB RAM (70ns)	*1-32MB RAM (70ns)	*1-128MB RAM (70ns)	*1-128MB RAM (70ns)	*1-128MB RAM (70ns)	*1-128MB RAM (70ns)
*AMI BIOS	*128K CACHE	*256K CACHE	*256K CACHE	*256K CACHE	*256K CACHE
*Teac 1.2 or 1.44 FDD	*AMI BIOS	*AMI BIOS	*AMI BIOS	*AMI BIOS	*AMI BIOS
*IDE FD/HD CTL	*Teac 1.2 or 1.44 FDD	*Teac 1.2 or 1.44 FDD	*Teac 1.2 or 1.44 FDD	*Teac 1.2 or 1.44 FDD	*Teac 1.2 or 1.44 FDD
*2S\1P\1G ports	*IDE FD/HD CTL	*IDE FD/HD CTL	*IDE FD/HD CTL	*IDE FD/HD CTL	*IDE FD/HD CTL
*101-key keyboard	*2S\1P\1G ports	*2S\1P\1G ports	*2S\1P\1G ports	*2S\1P\1G ports	*2S\1P\1G ports
	*101-key keyboard	*101-key keyboard	*101-key keyboard	*101-key keyboard	*101-key keyboard
$279	$349/$359	$599 ISA $629 VESA	$729 EISA/VESA	$759 ISA $799 VESA	$849 ISA $879 VESA

1 Year Parts/ 2 years Labor Warranty

High Quality, Full Compatibility And Reliability Are Guaranteed!

5/18/93

Monitors

SONY 1304s...$569
SONY 1430s...$599
SONY 1604s...$949
SONY 1936..$1889
NEC 3FGx......$595

NEC 4FG.............$749
NEC 5FG...........$1349
NEC 6FG...........$2399
Viewsonic 6E........$349
Viewsonic 6FS.....$539
Viewsonic 7..........$999
Viewsonic 8........$1599

Arch .28 SVGA.........$279
Arche N-I SVGA.....$319
12"/14" Mono......$89/$119
14" white SVGA........$169
Nanao F 550i...........$1099
Nanao T560i.............$1649
Nanao T660i.............$2499

Video Adapters

OAK 800X600 VGA............$39
Trident 1024 W/1MB............$65
Tseng Labs 1024 1MB............$85
Genoa VLB 1MB.................$119
Cirrus Logic VLB 1MB.........$95

ATI GraphicUltra Pro 2MB/VLB...........$429
Orchid Fahrenheit 24X 1MB.................$159
Orchid Fahrenheit VLB 1MB.................$179
Orchid P9000 VLB..............................$429
Diamond Stealth 24 1MB.........................$179
Diamond Stealth 24 VLB 1MB................$189
Stealth Pro VRAM 1MB/2MB........$269/$369

Hard Drives

Conner 40MB IDE...........$149
Conner 80MB IDE...........$179
Conner 120MB IDE.........$189
Conner 170MB IDE.........$219
Maxtor 254MB IDE..........$299
Maxtor 130MB IDE..........$199

Maxtor 213MB IDE.......$269
Maxtor 250MB IDE.......$299
Maxtor 340MB IDE.......$439
Maxtor 340MB SCSI......$559
Maxtor 535MB IDE.......$859
Maxtor 535MB SCSI......$899
Toshiba 1.2GB SCSI....$1299

Modems

Zoltrix 2400 Int.........................$45
Zoltrix 24/96i FaxModem....$59
Intel Satisfaxtion 200..........$299
Intel Satisfaxtion 300..........$319
Intel Satisfaxtion 400..........$399
US Robotics......................$Call

Scanners

HP ScanJet IIp w/IF........$759
HP ScanJet IIc w/IF......$1359
Microtek IIXE............$1129
Logitech Scanman32 ....$129
Logitech Scanman256........$249
Logitech Fotoman.....$489

Misc

SummSketchIII 12x12..$299
NEC Silentwriter 95...$1329
NEC Silentwriter 97...$1599
Softwares......................$Call
Tape Backup................$Call
Memory.......................$Call

Sunnyvale

1082 E. El Camino #3
(Btw Lawrence & Henderson)
(408) 985-1309

MON-FRI 9AM-6PM
SAT 10AM-5PM
Financing Available
Corporate Inquiry Welcome

Prices & Specs
Subject to Changes
w/o Notice

Advertised Prices
Based On 2% Cash
Purchased Discount

Palo Alto

454A California Avenue
(Btw El Camino & Alma)
(415) 321-9288

Of course, many people don't know English as well as they think they do. An interesting custom that has developed on a few lists is to post a message in one's mother tongue, followed by the same message in your own translation into English. Thus those who know the original language can read it, and those who don't can read the English (and maybe correct it with what they know of the original language).

On the other hand, regions with a common language tend to develop lists and newsgroups in that language. Latin America and the Caribbean have many lists in Spanish (and some in Portuguese), for example, and the number is growing rapidly. Most Latin American networkers seem to be quite proficient in English, but naturally prefer their own languages to communicate among themselves. Unlike in Europe, only a few languages are widespread in Latin America and the Caribbean, so this is possible.

ORGANIZATIONAL BOUNDARIES

Networks tend to bypass some traditional communications mechanisms. You don't need to get everybody in the same place, as for a face-to-face meeting, or even at the same time, as for a telephone conference call. You don't need a secretary, a paper envelope, or a postage stamp. You usually don't have to wait days to weeks (or months, for sea mail) for delivery. The difference between local delivery and international delivery is often small. If you don't want a message, you can delete it and its bits get reused; there's no paper to destroy and no dead trees to worry about. Sun Microsystems even won an environmental award for converting a paper newsletter into an online mailing list.

In industry, there are numerous examples of companies as diverse as computer hardware and software manufacturers, oil companies, and banks, who say they simply could not do business without networks to organize their internal operations and to communicate with customers, as a recent survey shows. Files can be shared across continents and oceans.

In academia, networks permit researchers to communicate readily with a larger subset of the colleagues in their field than would otherwise be possible. They don't have to go to a conference or pay for long distance telephone calls to exchange informal views. They don't have to wait months or years for a journal publication to see a formal writeup of research results. It doesn't take six months of waiting for paper post to compose a collaborative report with coauthors from different universities.

INSTITUTIONAL BOUNDARIES

Because mail, lists, and news permit many people to communicate across a variety of boundaries, these Computer Mediated Communications (CMC) media permit the formation of communities where there may have formerly only been specialists or isolated individuals. Institutions do not have to be geographically colocated. This effect can be seen in areas as diverse as

Songtech International, Inc.

Tel: 510-770-9051
Fax: 510-770-9060

POWERFUL PORTABLES!

KINGTECH
LCD PORTABLE
- 640 x 480 Supertwist LCD Screen w/Built-in Backlight
- Run VGA/EGA/CGA/MGA Mode
- 200 Watt 110/220 Auto Switch P/S
- Detachable 89-Key Keyboard
- Two 5.25" FDD, One 3.5" HDD
- Six Expansion Slots
- Weight: 16 lbs.
- Dimensions: 16" (W) x 9" (H) x 7" (D)

$795 VGA

CRT Portable w/9" Monitor . . . $345
SVGA Color Portable . . . . $1250 Case Only

GAS PLASMA PORTABLE
- High-Resolution Gas Plasma Display
- 640 x 480 Pixel Graphics Display CGA/VGA
- 80 Characters x 25 lines
- 9.25" x 6"
- Detachable 84-Key Keyboard
- 110/220 VAC Auto Switching
- RS-232 Serial Port
- Parallel Printer Port
- External Monitor Port
- Soft Carrying Bag

$845 Paper White
$1295 VGA+
Case Only

COLOR LCD PORTABLE
- Healthy: No Radiation Color LCD
- Powerful: Up to 486 50 MHz, High Memory, High Capacity Storage
- Expandable: Standard Expansion Slots
- Flexible: Upgradable, and more...

$CALL

SYQUEST REMOVABLE HARD DISK (SCSI TYPE)

44MB Model SQ555	$275
88MB Model SQ5110	315
44MB Cartridge SQ400	63
88MB Cartridge SQ800	95

External Available

MULTIMEDIA PACKAGES

Sound Galaxy NX Pro	$139
Mitsumi CD-ROM	185

NETWORK-READY KITS

Lantastic/AL Starter Kit
- Two Lantastic/AL NOS
- Two T Connectors
- Two Ethernet E2000 Cards
- Two 50 OHM Terminators
- One 20" RG58 Coaxial Cable

$CALL

ULTIMATE MULTIMEDIA

$CALL

CRT SUPER VGA COLOR PORTABLE
- 8.5" Sony Trinitron .26 Dot-Pitch Tube
- 80x25 Character Display
- 110/220V AC Switching 200W PS.
- Approx. 20 Lbs (SKD Case)
- 3 Drive Bays
- Detachable Enhanced Keyboard
- Super VGA Internal Color Monitor
- Built-In HI-FI Stereo Speakers

SUPPORTS:
- Standard Baby Size System Board 286, 386(SX, DX), 486(SX, DX)
- Floppy Drive: 3 1/2" 1.44 MB & 5 1/4" 1.2 MB Dual Media 1.2 & 1.44 Combo Drive
- Hard Drive: 20/40/80/100/120/200/300/500 MB
- Memory: 640K/1/2/4/8/16/32 MB
- CD-ROM, Sound Card & Image Card, etc...

COMPLETE SYSTEMS

486DX2-66 MHz VESA	CALL	486-33 MHz w/64K Cache	CALL
486-50 MHz EISA	CALL	386-40 MHz w/64K Cache	CALL
486-50 MHz ISA	CALL	386-33 MHz w/64K Cache	CALL
486-50 MHz w/64K Cache	CALL	486SX-25 MHz	CALL
486-33 MHz VESA Local Bus	CALL	386SX-20 MHz	CALL

SYSTEM CONFIGURATIONS
- ♦ High Quality Motherboard
- ♦ 4MB RAM On Board
- ♦ 1.2 & 1.4MB Floppy Drive
- ♦ SVGA Monitor .28mm DP
- ♦ 120MB Hard Drive
- ♦ 1MB VGA Display Card
- ♦ Mini-Tower Case w/200 W PS
- ♦ Enhanced 101 Keyboard
- ♦ Mouse
- ♦ IDE I/O (2S/P/G) Controller

VIDEO CARDS & MONITORS

VESA LB SVGA 1MB	$125
Super VGA 1024 x 768 0.28	255
Diamond Stealth 24 SVGA 1MB	165
Trident Super VGA 16 Bit, 1MB	69
Impression 14" Non-Interlace	289
Impression 14" Super VGA	265

HARD DISK SPECIALS

Seagate ST151 42MB MFM	$125
Conner 80MB IDE	175
Conner 120MB 19ms IDE	195
Conner 170MB IDE	215
Maxtor 130MB IDE	195
Maxtor 210MB IDE	255
Maxtor 240MB IDE	289
Maxtor 340MB IDE	425
Western Digital 340MB	425

MATH CO & MEMORY

80387SX-25	$75
80387DX-25	39
80386DX-33	69
80387DX-40	75
256K SIMM Module	CALL
1MB SIMM Module	CALL
4MB SIMM Module	CALL
386,486 CPU	IN STOCK
Cooling Fan For CPU	15

KEYBOARDS

Enhanced 101 Click (baby)	$29
MTEK 104 Click	35
MaxiSwitch 101	35
Keytronics 101	35
Omnikey 101/102	69
Omnikey Ultra 130	99

FLOPPY DRIVES

Teac 5 1/4" 1.2MB FDD	$49
Teac 3 1/2" 1.44MB FDD	45
Teac 1.2 &1.44 Combo Drive	125

COMPUTER CASES

Slide-In Case w/200 W PS	$69
Mini-Tower w/200 W PS	59
Med-Tower w/200 W PS	85
Full-Tower w/230 W PS	115
Big-Tower w/250 W PS	165

POWER SUPPLY

SCSI Ext Box w/ PS 30W	$75
200 W AT	39
230 W XT/AT	45
285 W AT	55
300 W AT	65

CONTROLLER CARDS

16-Bit Ethernet Card 2000B	$75
Adaptec 152B SCSI	265
Adaptec 1540A SCSI	85
MFM 1:1 16 Bit	45
IDE I/O (2S/P/G)	25
AT I/O (2S/P/G)	12
IDE Card	14
High Speed AT I/O (2S/P/G)	49

MOTHERBOARDS

486DX2/66 VESA	$675
486-33 MHz VESA	475
486-50 MHz ISA	570
486-33 MHz ISA	425
486-25SX	240
386-40 MHz ISA	145
386-33 MHz ISA	140
386-25SX	95

ACCESSORIES

Logitech Mouseman (Serial)	$65
Logitech Mouseman (Bus)	69
Logitech Trackman (Serial/PS2)	85
MS-DOS V5.0	45
Microsoft Windows V3.1	45

MODEM

Zortix 2400	$42
Zortix Fax Modem 2400/9600	75
Zortix 14400/14400 Fax/Modem	195

AND MUCH MORE...
CALL FOR BEST PRICES
DEALER INQUIRIES WELCOME

44061 So. Grimmer Blvd.
Fremont, CA 94538

PC/XT/AT are registered trademarks of International Business Machines, Inc.
Prices subject to change w/o notice
Not responsible for typographic errors.

BUYING A COMPUTER CAN BE FUN!

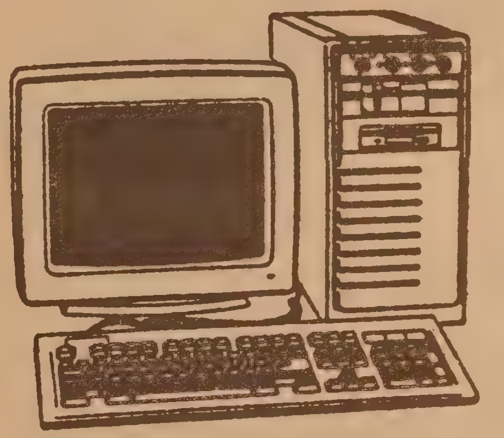
Are you afraid of walking into a computer store and being overwhelmed by computer talk?...well you don't have to be afraid anymore. At Winners Circle we offer an informal and relaxed atmosphere. Our knowledgeable sales staff takes the time to help you choose the right computer from our large selection of major brands. Come to Winners Circle and find out why...our computers are better.

Andy's Special VESA Machine

- 486DX-33
- 4MB RAM
- 5.25" and 3.5" Floppy
- 245MB Hard Drive
- Andy's Special Software Bundle
- DOS 6
- Windows 3.1
- Mouse
- Local Bus Video
- Local Bus Controller

FASTER THAN FAST!

$1999



PC Upgrades

Upgrade any computer to a 486 for as low as........................... **$400**

200MB Hard Drive Upgrade for as low as........................... **$350***

120MB Hard Drive Upgrade for as low as........................... **$199***

* with exchanged core

VIDEO TOASTER 4000

VIDEO TOASTER
4000

ON DEMO & IN STOCK

Newtek Authorized

Create broadcast quality television on your desktop!

Multimedia Upgrades

Sound Cards, Tape Back-ups, CD ROMs & Speakers. We are multimedia specialists for IBM compatibles, Amiga, Atari and Macintosh products.

Sound Blaster.......................... **$89**

CREATIVE
CREATIVE LABS, INC.

TEXEL MEDIA VISION

Canon Bubble Jet 200

Breakthrough Technology

Canon's new Bubble Jet printer incorporates new print technology that produces laser quality printing at a truly affordable price. With 360dpi resolution, the BJ 200 prints text and graphics with the speed and quality of a laser printer. And the new compact size fits anywhere easily, without taking up valuable space.

$329 with ad

The Most Powerful Pocket-Sized Computer

PSION SERIES 3

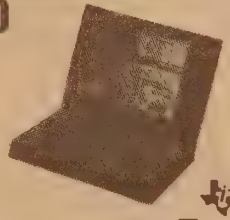
Easy to use Graphical User Interface with windows, pull-down menus, dialog boxes and icons.

- Word Processor compatible with Microsoft Word
- Database with cross referencing templates
- Time & Personal Management Diary
- Communicates with printer, modems, etc.
- Computer Calculator
- Expandable
- Size only 6.5"x3.3"x0.9"

$399 In Stock

TEXAS INSTRUMENTS WIN DX250

- 50MHz Processor
- 200MB Hard Drive
- DOS, Windows 3.1
- Weighs 5.6lbs.
- Trackball



$2999

TEXAS INSTRUMENTS

Video Blaster from Creative Labs

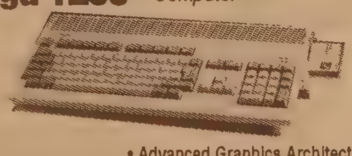
- Includes MS Video for Windows
- Displays full-motion digital video in a moveable, sizeable window
- Overlay computer text and graphics on video
- Bundled software

$350

COMMODORE

Amiga 1200

Personal Computer



- Advanced Graphics Architecture™
- 256,000 simultaneous colors from a palette of 16.8 million available
- Hardware Scan Doubling for flicker free display on 31 KHz monitors

Commodore® AMIGA

AST PowerExec 3/25SL

- Intel® 386SL Processor
- 25MHz Clock speed
- 4MB of High Performance RAM
- 60,80,120, or 160MB Hard Drive

AST PowerExec 3/25SLC

- Intel® 386SL, 25MHz Processor
- 4MB of High Performance RAM
- 60,80,120, or 160MB Hard Drive
- 9.5" Matrix display

AST® Authorized System Reseller

FEATURING TOP RATED SERVICE

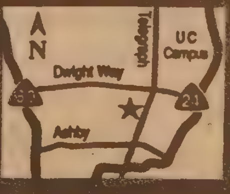
- Friendly, Knowledgeable Staff • Full Time Tech Support
- In-House Authorized Repairs • Free Public Domain Software • Free Training

PRODUCT SELECTION

- Top-Rated Major Brand Computers and Printers • CD-ROM • Tape Backup
- Laptop Computers • Modems and Fax Machines • Large Selection of Software & Accessories
- Color Desktop Publishing

WINNERS CIRCLE SYSTEMS

2618 Telegraph Ave. • Berkeley, California • 510-845-4823 • Fax 510-845-2400
Hours: Monday Thru Saturday 10:00-6:00



Wicca, genealogy, or ethics.

Networks can also permit independent researchers. For the last hundred years or more, probably most respectable science and engineering has been done at large institutions, such as universities and government-sponsored research facilities. No doubt many people have and will continue to have good reasons for preferring such institutions. But this was not the way of Pythagorus or Socrates, nor of Charles Darwin. With networks, centralization and institutionalization doesn't have to be the way of all modern researchers. The independent researcher such as James Lovelock (who discovered the thinning of the ozone layer) may become no longer an anomaly, given networks.

Consider four reasons for large research institutions: physical plant for people and equipment, informal access to other researchers, access to libraries, and publication. Computers themselves used to be the pieces of equipment requiring the most maintenance, but you can now sit in a hammock in the sun and hack on one. CMC promotes informal access to researchers, and does so in such a way that it doesn't matter much where the researchers are.

Use of network technology greatly facilitates journal publication. I recently published an article in a medical journal, and another in a business journal. I was astounded to discover that these publications still retype the entire manuscript! And send their only copyediting copy, in paper form, to the author. And take up to a year from submission to publication! In one case, I used figures from a book in progress in a conference presentation and a related journal article. A year later, the same conference had come around again, I had finished the book and it had been available in bookstores for months, yet the journal article had still not appeared...

Meanwhile, newsletters and journals such as *Matrix News* and *Internet Society News* that accept articles online have turnaround times of months, weeks, or even days. *Matrix News* has published articles from India, China, Latvia, Antarctica, Argentina, Canada, and even San Francisco. All arrived online, were edited online, usually were written online, and we now distribute online, as well as on paper. Network technology permits article submissions across geographical boundaries.

I redrafted this article from my parents' farm, where I've been conducting business for two weeks via an Internet connection and occasional use of the telephone. My literary agent recently attended a family reunion for a week that she couldn't have gone to but for a day, if she hadn't been able to send email. More people will come to use the networks for work from unusual places. Other communications media are already eroding the necessity of big cities. Networks will speed the process.

STEPPING ACROSS BOUNDARIES

Networks permit old communities to extend across boundaries, and permit the formation of new communities. They affect organizational structures and organizational effects on the outside world. They permit more independence of researchers from institutions. Tens of millions of people are already online, and as many more will be next year. ■

SPARC WORKSTATION

SPARC II + (50MHz) With SCSI-2 Interface

100% SPARC CLONE, RUNS SOLARIS 1.X & 2.X

Runs At 50 MHz

U.S.A. MADE

$3,295

Includes: SPARC II+ 50 MHz CPU, 1.44 MB FDD, SCSI Interface, 2 Years Parts & Labor Warranty

PRICES ARE BORN HERE & RAISED ELSEWHERE!

Also,

SPARC 1 or 1+ UPGRADE TO SPARC II+ $1895

- CD-ROM, HDD, TAPE
- MEMORY
- SBUS PERIPHERALS
- TERMINAL SERVERS
- X-TERMINALS
- ISLAND GRAPHICS
- SCSI CABLES
- TRANSCEIVERS AND MUCH MUCH MORE!

SPARC II SYSTEM w/G3 $2795

NEW! - 100% SPARC 10 MODEL 41 CLONE!

(800) 22-SUNAR
(408) 982-0288
E MAIL: SUNAR @ NETCOM. COM
3350 SCOTT BLVD., #1901
SANTA CLARA, CA 95054
Hours: M-F 8:30-5, Sat. By Appt.
Reseller Inquiries Welcome

SUNAR SYSTEMS
Low Leasing Rates Available
MasterCard VISA

We Make Cellular Work For You !!!

Complete Line of Cellular Phones & Accessories

MOTOROLA OKI PHONES MITSUBISHI INTERNATIONAL CORPORATION

Motorola PT-550	$349
Motorola Lite Base	$649
Motorola MC-750	$269
Motorola MC-420	$259
Motorola Ultra Cls.	$334
OKI 910	$399
OKI 830	$339
OKI 1150	$685
Fujitsu PCX	$899
Ericsson Hotline	$399

Leather Cases

Motorola Flip, Microtaclite, Ultra Classic MC 750, OKI 900, Nokia 101, NEC P-300 NEC P-400, Mitsubishi 22X & 3000 TechnoPhone 205A, Audiovx Mini Lite Panasonic HP-600

Your Choice $39

Battery Eliminators
Most Major Brands
$39.95

Quality Service By CELLULAR ONE
Bay Area Cellular Telephone Co.

Rapid Charger
Flip Ultra Fast Charger
Conditioner 30 Min Quick Charger
$89.95

415-742-0752

PAGER	
5100N	$99
Bravo	$119
Bravo/Clear	$129
Bravo Plus	$139
Bravo Express	$149

Pager Accessories	
Leather Case	$15
Plastic Housing	$19
Chain	$8

In All Colors

PageMart

ABS 400 Florence St, Palo Alto 415/324-0616

WE SELL QUALITY, RELIABILITY, SERVICE & TECHNOLOGY!!

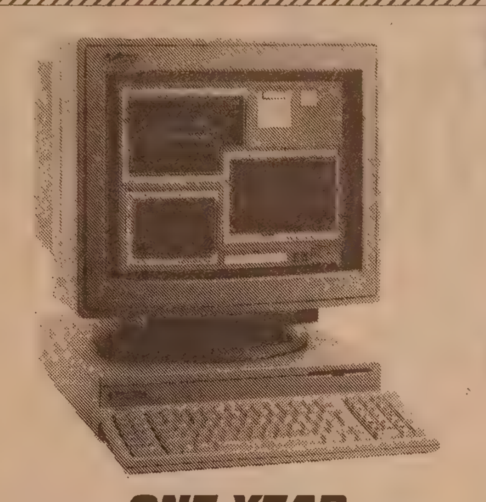
** PromoX SS II-40 WORKSTATION **

$5995

SUN SPARC II-40 MHz 100% Compatible

40 MHz SPARC Integer Unit/Floating Point Processor, 64K Write Through Cache, Three S-bus Expansion Slots, 32MB RAM, Sync SCSI Controller, 2 RS-423A I/O Ports, 15-pin Ethernet Port, Desktop Case, Keyboard, Mouse, 340 MB Hard Drive, GX Graphics Accelerator, 17" Color Monitor (.26mm), SUN Solaris OS 1.0 (Includes SUN OS, Sunview and Openwindow)

UPGRADE SPARC™ I + TO SPARC™ II-40	**$1650**
S-BUS Fax/Modem with S/W	**$895**
MOTIF 1.2 Development Kit	**$250**
External Toshiba CD-ROM (200ms) Switchable Between SPARC & DOS	**$650**



ONE YEAR ON-SITE SERVICE ! BUY SS II AND GET X NET FREE!

*** X TERMINAL/SERVER ***

X Terminal 14"/17" Color Monitor	**$1545/1745**
X-Net (XII/R5 Server for DOS, TCP/ IP, PC/NFS, FTP, TELNET)	**245**
PC-NET (TCP/IP, NFS, FTP, Telnet, DOS TAR & Print Router)	**99**

➡Come see our new technology–Multi-Network Environment

** NOTEBOOK COMPUTER **

5 HOUR BATTERY!

Supports UNIX/XWINDOWS

386SX-20/386SL-25/386DXL-33 MHz with 4/8MB RAM, 1.44 MB FD, 80/120/200 MB HD	**FROM $900**
486DX-50/486DX-33/486SX-25 MHz with 4/8/16MB RAM, 1.44 MB FD, 80/120/200 MB HD	**FROM $1700**
486DX-33/486-25 MHz ACTIVE MATRIX COLOR with 4/8/16MB RAM, 1.44 MB FD, 80/120/200 MB HD	**FROM $3100**

*** UNIX FOR PC ***

Ready To Run LINUX/GINU/X in CD	$60
LINUX w/Sony CD-ROM	270
UNIX SVR4 & X11R5/MOTIF 1.2	600
X11R5 & Motif 1.2 for SVR4	290

UnIVel

UnixWare Personal Edition (CD-ROM and network Install)	$180
UnixWare Personal Edition (QIC-24 tape)	210
UnixWare Personal Utilities (CD-ROM)	180
UnixWare Personal Utilities (QIC-24 tape)	210
UnixWare Software Development Kit	420
UnixWare Application Server	910
UnixWare Server Merge for Windows	290
UnixWare TCP/IP & NFS	210

SunSoft/Interactive UNIX

Interactive UNIX/386 Operating	$350
Interactive UNIX/386 Application Platform	625
UNIX/386 Network Platform	835
UNIX/386 Workstation Platform	975
UNIX/386 Workstation Developer	1675

SCO UNIX/XENIX:

SCO Open Desktop Personal (Tape)	$975
SCO Open Desktop Server Upgrade (Tape)	1045
SCO Open Desktop Server System (Tape)	1815
SCO Open Desktop Development System (Tape)	1255
SCO UNIX (2 User)	395
SCO UNIX (3+ User)	895
SCO UNIX Development	895
SCO XENIX OS (1-2 Users)	395
SCO XENIX OS (3+ Users)	625

*** NETWORKING ***

SilverNet Starter Kit (the Fastest Peer-to-Peer Network)	$250
Novell Lite Starter Kit (2 Nodes)	195
Novell Netware	$BEST
8-Bit Arcnet Card (Star/Bus)	45/50
16-Bit Arcnet Card (Star/Bus)	60/65
NE-1000 Compatible 8-bit Ethernet Card (Novell Certified)	55
NE-2000 Compatible 16-bit Ethernet Card (Novell Certified)	60
Arcnet 8-Port Hub	120
10 BaseT 8 Port Hub	230
10 BaseT 12 Port Intelligent Hub	575
SMC (Western Digital) 8-bit Ethernet Card (Coax/10BaseT)	120/125
SMC (Western Digital) 16-bit Ethernet Card (Coax/10BaseT)	150/160
WD8003E 8-bit Compatible	85
SMC 3COM/NE2000 16-bit Compatible combo Board (BNC+AUI+10BaseT)	90
Pocket LAN Card	150
3 Com 3C503 Ethernet II	160
Token Ring Adapter 16/4 Mbs	425
8 Port Token Ring STP/UTP/MAU	345
8 Port Intelligent Multi-User Card (RS232)	299

486 UPGRADABLE LOCAL BUS SYSTEMS

486/66 MHz ISA/EISA	$1015/1110
486/50 MHz ISA/EISA	930/1015
486/33 MHz	770
486SX-33 MHz	670
486SX/25 MHz	595
386/40 MHz Non-Local Bus	465
386/33 MHz Non-Local Bus	460

ONE YEAR ON SITE SERVICE

- 128K Cache • 4 MB Toshiba or Hitachi 70ns RAM
- 1.2 MB & 1.44 MB Floppy Drives • Dallas Real Time Clock
- Local Bus IDE Controller w/2S/1P/1G Ports
- 101 Key Enhanced Keytronics Keyboard
- Mini-Tower or Desk Top Case w/200 W Power Supply
- PC Users Guide • Pentium Socket Ready

ALL SYSTEMS GUARANTEED TO RUN UNIX, WINDOWS NT, OS/2, NOVELL, PICK

SPECIAL PRICE FOR DEALERS/VAR ON LOCAL BUS MAINBOARD & VGA CARD (Made In USA)

ONE YEAR PARTS, TWO YEAR MAINBOARD, THREE YEARS LABOR WARRANTY

Video Card Options:

Accumose (with Window Accelerator) 512K VGA Card	$40
Trident 1 MB VGA Card	55
Tseng Labs ET4000 1 MB VGA Card Hi-Color	86
Diamond SpeedStar 24X	150
Diamond Stealth 1 MB VGA Card	170
ATI Graph Ultra 1 MB	230
ATI Ultra Prq Local Bus 2 MB	445
Orchid Fahrenheit VA 1 MB Local Bus	175
Local Bus Cirrus Logic 16 Million Colors	100
Local Bus ET4000 1MB VGA Hi-Color 16 Million Colors	105
Local Bus S3 Chip 1MB VGA Hi-Color 16M Colors	145
Local Bus ET4000/W32 1MB VGA Hi-Color 16 Million Color	155

Monitor Options:

14" Mono	$90
14" SVGA Mono (1024x768) (.28mm)	110
14" SVGA (.28mm)	265
14" NI SVGA (.28mm)	300
14" Relisys VESA NI SVGA (.28mm) 70Hz	310
14" ViewSonic NI SVGA (.28mm)	325
15" CTX NI SVGA (.28mm)	425
15" Hitachi SVGA (1024x768 .28mm)	480
15" NEC 4FG (1024x768 .28mm)	765
15" ViewSonic 15 (.28mm)	675
17" Samsung NI SVGA (.31mm)	750
17" Samsung NI SVGA (1280x768) (.26mm)	910

Hard Drive Options:

40/80/120 MB	$125/180/195
Conner 540 MB 12ms (IDE)	830
Fujitsu 520 MB 9ms (SCSI)	825
Maxtor 200 MB 15ms (IDE)	280
Maxtor 340 MB 13ms (IDE/SCSI)	380
Maxtor 1.2 GB 14ms (SCSI)	1050
Maxtor 1.7 GB 13ms (SCSI)	1375
Quantum 240 MB (IDE)	315
Local Bus IDE Controller	45
Local Bus IDE Controller (up to 16 MB Cache)	185
Local Bus SCSI Controller	250

MULTIMEDIA KIT

*SONY CD-ROM
*Gallant Sound Card
(Sound Blaster)
*Microphone

$380

*Voice Kit
*Speakers
*5 CD-ROM Titles For Windows

MULTIMEDIA DESKTOP CASE w/SPEAKER, POWER SUPPLY **$160**

UNIX / NOVELL/ LAN MANAGER NETWORK INSTALLATION / MAINTENANCE CALL

Some Of Our Satisfied Customers:

- AMD
- Cadence
- DCA
- Ford
- Fujitsu
- IBM
- ISSI
- Lockheed
- McAfee
- Microsoft
- Quantum
- Stanford Univ.
- Sony
- U.S. Postal Service
- Winbond

PromoX Systems

1050 East Duane Ave., Suite B
Sunnyvale, Ca 94086

AMD
East Duane
SF
101
Central Exp.
R & B
Commerce Park
Lawrence Express
SJ

Sparc registered trademark of Sparc Systems Inc.

Tel: (408) 733-2966
Fax: (408) 733-2968
E-Mail Address: promox@cup.portal.com
Hours: Mon-Fri 9-6 Sat 10-4
Prices Subject To Change W/O Notice

Plug In, Log On, Tune In

Internet Talk Radio

BY KEVIN M. SAVETZ

From the depths of cyberspace, a new medium has emerged. “Internet Talk Radio” is a new information service that blurs the line between the online world and traditional media.

Internet Talk Radio (ITR) distributes weekly “radio shows” via the Internet’s anonymous FTP service. Each show—a half hour or an hour long—can be downloaded to a workstation or home computer and played using audio playback software. Unlike a myriad of other Internet newsletters and journals, Internet Talk Radio is the only one that actually speaks.

Each show is composed of several “.au” format sounds which can be played on a Sun or NeXT workstation, among other machines. Personal computer users can also listen in, but (depending on the computer) you may need to convert the “.au” sounds into a format more familiar to your hardware.

All this talk comes at a price, however. A typical hour-long radio show consumes a whopping 20MB of disk space. Despite its slow sampling rate of 8kHz, ITR is a memory hog.

Carl Malamud, founder of ITR, explains: “The idea for ITR came from my frustration with the trade press. I knew they weren’t providing the information I wanted, and was looking for an alternative.” He notes that the trade press focuses on marketing and reviews, leaving a gap for a general interest, technically oriented publication for Internet users. “I couldn’t start a magazine, because it takes money to print and distribute a magazine,” he says, so he turned to the Internet as a general-purpose distribution method.

“I looked at the trends in multimedia support on the Internet, at the number of users with more and more bandwidth and bigger disk drives, and decided to give ‘radio’ a try,” he said.

Some net users have criticized the talk radio concept as a grandiose waste of network bandwidth, given the fact that the same information in text format could fit into only a few kilobytes. “The reason you get audio information from a $3000 (or $30,000) computer,” Malamud said, “is because ultimately this gives you a very new medium. We’re not trying to replace radio, just as the trucks didn’t replace the railroads and the telephone didn’t replace the telegraph. There are things we can do that you can’t do on a radio, like go interactive, or add WAIS databases to support a program, or use general-purpose languages like PERL to make an audio-on-demand server...” It is the versatility of ITR that is its selling point.

ITR’s parent company, Internet Multicasting Service, isn’t doing this just for glory. Each program carries sponsors, and a minute of each program is given to acknowledge the supporting vendors. The blurbs aren’t quite commercials—they resemble public TV’s post-show sponsor messages (“Brought to you by a grant from Frobnitz Corp., and viewers like you!”). Current sponsors include Sun Microsystems and O’Reilly & Associates book publisher.

WHAT’S ON...

For the most part, ITR consists of interviews. Whether they’re talking with the “Geek of the Week” (a featured member of the technical community) or focusing on “the new American reality” in the *Tech Nation* show, it all boils down to people conversing with each other. Like the name says, Internet Talk Radio parallels its mainstream counterpart. Except ITR is a lot more nerdy.

Tech Nation is a weekly radio show that focuses on “the new American reality”—that the US has become the “tech” nation. The premise is that this new reality is causing introspection—“Americans are looking at who they are and where they are going.”

Tech Nation is hosted by Dr. Moira Gunn, a former NASA scientist and robotics engineer, who focuses on uncovering core issues as well as important technology announcements. Unlike *Geek of the Week*, which is only distributed via the Internet,

continued on page 181

ITR founder Carl Malamud:

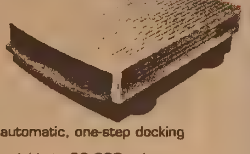
> “I looked at the trends in multimedia support on the Internet, at the number of users with more and more bandwidth and bigger disk drives, and decided to give ‘radio’ a try.”

Copyright © 1993 by Kevin Savetz. All rights reserved.

Kevin M. Savetz is a writer and Internet junkie living in Arcata, California. His email address is “savetz@rahul.net”.

Apple® Macintosh®
And
E·n·h·a·n·c·e·m·e·n·t·s

Apple® Macintosh® PowerBook Duo™ Dock



- PowerLatch docking technology for easy, automatic, one-step docking
- Internal 1.4 MB Apple SuperDrive
- Built-in video support for 256 colors, expandable to 32,000 colors
- Supports most Apple displays, including the Macintosh 16" Color Display, as well as some VGA and SVGA displays
- Two NuBus expansion slots
- 10 built-in ports, including SCSI port for up to six peripherals, such as an external hard disk or CD-ROM drive
- Security key for locking PowerBook Duo and slot for a security cable

#1738432

Authorized Reseller

$999

Apple® Macintosh® Duo™ Modem

Apple's new Macintosh PowerBook Express Modem makes an excellent choice if you use a Macintosh PowerBook 160, PowerBook 180, PowerBook Duo 210, or PowerBook Duo 230 notebook computer and want high-speed data communications with fax send and receive capability. This low-power modem fits neatly inside your Macintosh PowerBook computer and provides up to 57,600 bits-per-second (bps) data transfer, so you can send information to another computer from any location up to 24 times faster than with an ordinary 2400 bps modem lacking compression capabilities. The Macintosh PowerBook Express Modem with its Express Fax software allows you to send and receive faxes at 9600 bps. Whatever you can print, you can fax. You can even use fax machines as printers on the road: Documents faxed from the PowerBook don't have to be scanned, so text and graphics are sharp and clear. The built-in smoothing feature makes received faxes much clearer and sharper than those from competitive modems. Fax forwarding, quick-send, and calling card support also increase flexibility.

#1738421

Authorized Reseller

$319

Apple® Macintosh® Powerbook™ External Floppy Drive

1.4 Mega Byte Floppy disk drive for all Macintosh PowerBook computers

#1738395

Authorized Reseller

$199

Apple® Macintosh® PowerBook Mini Duo™ Dock

- Small size and weight for easy portability
- PowerLatch docking technology
- Built-in video support for 256 colors
- Supports most Apple displays, including the Macintosh 16" Color Display, as well as some VGA and SVGA displays
- 9 built-in ports, including SCSI port
- Slot for a security cable
- Port for connecting external floppy disk drive

#1756779

Authorized Reseller

$589

APPLIED ENGINEERING®

POWERBOOK FAX/MODEM

INTERNAL 14.4/14.4 FAX
MODEM WITH VOICE MAIL FOR
ALL EXCEPT
100
#1771736

$499.99

APPLIED ENGINEERING®

TRANSWARP 4340 ACCELERATOR

LC AND LC II TRIPLE
THE SPEED 68030/
25MHz ACCELERATOR
#1771769

$399

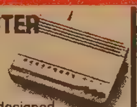
EXTERNAL DATAPORT™ 14.4 MAC

14400 Modem
960000 Baud Fax
V.42 BIS AT
External Cable and Software
#1787207

AT&T

$349

USRobotics SPORTSTER 14,400 BAUD EXTERNAL MAC&FAX®



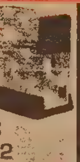
A combination fax and modem designed for use with the Macintosh. Send and receive Group III fax transmissions. Supports data speeds from 14,00 to 300 and fax speeds from 9600 to 2400. Fully CCITT V.32 bis and CCITT V.29 compliant. Includes V.42/MNP 2-4 error control and V.42 bis/MNP 5 data compression for thoughput of up to 57,600 bps.

#1759923

$219

COMPUTER PERIPHERALS, INC

SEND/RECIEVE MAC MODEM W/CABLE



CPI 502404 VIVA 14.4 MAC
EXTERNAL 14,400 BPS/V.32
V.32BIS;
#1704657

$239

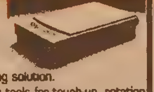
14,400 BPS MODEM/ 9600 BPS FAX FOR THE MACINTOSH® POWERBOOK™

#1735613

GLOBAL VILLAGE COMMUNICATION

$399.99

Apple® Color OneScanner™



The colorful, easy to use scanning solution. • Includes powerful image-editing tools for touch-up, rotation and scaling. • Ofoto 2.0 adds color support, background processing and improved user interface. • Easy to use with any Macintosh. • All Macintosh products are designed to work together.

#1756872

Authorized Reseller

$1299

SCANMAN 32 MAC

100-400 DPI Resolution
32 Shades of Grey
#1442528

LOGITECH

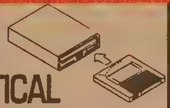
$299

UMAX 600 DPI COLOR MAC SCANNER WITH APPLE INTERFACE

PHOTOSHOP SOFTWARE
UC630MAC
#1771792

$1299

PLI 3.5 INCH MAC 128MB MAGETO OPTICAL REMOVABLE MEDIA DRIVE



Optical
Reads and Writes
SCSI Interface
MAC
#1661330

$1399

Apple® Macintosh® Super Drive

For Macintosh FDHD SE, SE/30, Classic, IISi, Ci, Cx
#1767913

Authorized Reseller

$279

170MB MAC EXTERNAL HARD DRIVE

Low Profile • PLI • #1784916

$399

21MB 3.5" FLOPTICAL DRIVE MAC

NEW!
A standard floppy drive and a 21MB floppy drive in one
21

IOMEGA

- 21MB capacity on inexpensive 3.5" size media
- Read & writes to standard floppies
- Up to 3 times faster than floppies
- Holographic Optical Tracking (HOT) for higher performance and reliability than other flopticals
- New Laser Etched Disks from Iomega - each one is a master

#1765128

$399

Quicken Version 3.0 for MAC

HOME BUDGETING & CHECKING SOFTWARE

End Financial Hassles with the World's Best Selling Financial Sofoware.

#1619780
MAC

Intuit

$39.95

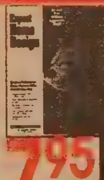
Microsoft OFFICE 3.0 for MAC

MS Office is all that you need for your office. Four top applications in one box. MS Excel, MS Word, MS Power Point and MS Mail.

#1699452

$464

Expert Home Design



With Expert Home Design you can create proffessional room or office plans the easy way just by using a mouse or keyboard.

#1721719

EXPERT

$27.95

CLARIS

ClarisWorks

New ClarisWorks™ has all the power and more, with complete word processing, graphics, spreadsheet, charting, database, and communications capabilities all in one seamlessly integrated application.

#1643303

$209.95

ALERT!

Alert! is an intelligent diagnostic program that looks at the software installed on your Mac and consults a database of known conflicts to isolate incompatibilities that could result in crashes, freezes and system bombs. It detects, deciphers and reports conflicts that are possible, probable or definite cause of problems.

#1770492

$119.95

Fry's ELECTRONICS

Home of Fast, Friendly, Courteous Service

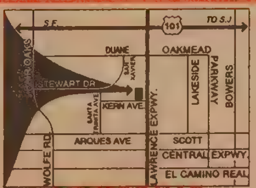
HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD

CORPORATE P.O. FAX #
(408)735-6800

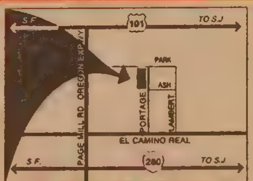
Prices good through June 21, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors



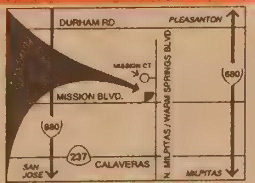
SUNNYVALE

1177 Kern Ave.
(408) 733-1770



PALO ALTO

340 Portage Ave.
(415) 496-6000
(415) 496-6060



FREMONT

440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

386SX 25MHz
COMPUTER SYSTEM

80386SX 25MHz CPU
2 Hard /2 Floppy Disk Controller
1MB RAM Expandable to 16MB
3.5" 1.44MB Floppy Drive
101-Key Keyboard • Clock/Calendar
Case/Power Supply
#1659210

$298

386SX 33MHz
MINI TOWER SYSTEM

80386SX 33MHz CPU
3.5" 1.44MB Floppy Drive
1MB RAM Expandable to 16MB
101- Key Keyboard
Clock/Calendar
#1741069

$319.95

486SX 25MHz
80MB SVGA SYSTEM

80486SX 25MHz CPU
1MB Expandable to 32MB
3.5" 1.44MB Floppy Drive
2 Hard/2 Floppy Controller
80MB Hard Drive
1024 X 768 SVGA Adapter Card
101-Key Keyboard • Clock/Calendar
MS DOS 5.0
MONITOR SOLD SEPARATELY
#1737866

$699

LEADING EDGE
486DX2-66MHz
213MB SVGA COMPUTER W/64K CACHE

80486DX2 66MHz CPU • 4MB of RAM Expandable to 32MB
Mouse • 5.25" 1.2MB & 3.5" 1.44MB Floppy Drive
101 Key Keyboard • HR Video Adapter with 512K.
2/Serial 1/Parallel 1/Mouse Port
Software Included: Microsoft DOS 5.0
MS Windows
MS Windows Works Wordprocessor •
Spreadsheet • Data Base
Virus Protection Software
Monitor Not Included #1712728

$1999

Avanti
386SL 20MHz
80MB NOTEBOOK

20MHz 386SL CPU
4MB RAM Expandable to 8MB
80MB Hard Drive
Fax Send/Receive Modem
3.5" 1.44MB Floppy Drive
High Contrast 10" LCD
Advanced Power Management
Unique Pivoting Screen Saves Space
#1728886

$1299

486SLC-2/50MHz
MOTHERBOARD
BY IBM

16K Internal Cache
Built and Tested by IBM
Math Coprocessor on Board
(Twice the internal cache as a 486DX-2/50MHz)
#1780749

$388

MOTHERBOARDS

386SX-25MHz #1634334	$99.95
386SX-40MHz #1757943	$139.95
386DX-40MHz #1735200	$188

LOCAL BUS VESA

486DX-33MHz #1754962	$499.95
486DX2-66MHz #1754973	$899.95

Panasonic
Office Automation

KX-P2180
9-PIN PRINTER
QUIET PRINTER TECHNOLOGY

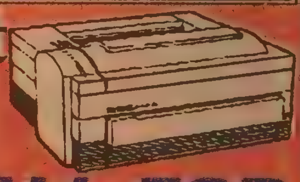
9 Pin • 80 Columns • 192 CPS
38 CPS NLQ • 6 Built In NLQ Fonts
240x 216 DPI Resolution
Push-Pull Tractor • Optional Color
#1658714

Fry's is an Authorized Panasonic A/O Service Facility.

$163

HEWLETT PACKARD
Authorized Dealer
A 50 YEAR TRADITION OF QUALITY, HP DELIVERS PC PRODUCTS YOU CAN DEPEND ON.

LaserJet 4L



26 built-in scalable typefaces let you shrink and enlarge type to thousands of sizes.
300 DPI Laser printing with HP Resolution Enhancement technology and microfine toner for smooth, sharp text and graphics.
1MB standard memory with Memory Enhancement technology effectively doubles your printer memory.
#1786963

CALL FOR PRICE

Charlie Chip Says:
"Your Best Computer Buys Are Always At...

FRY'S ELECTRONICS

DISKETTE CORNER

3.5"DS/HD FORMATED DISKETTES

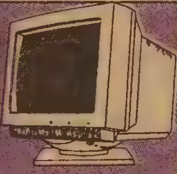
*With $5⁰⁰ mail-in rebate and purchase of two 25 packs. Sold in Packs of 25 for $19⁷⁵
#1612439

69¢* EA

5.25"DS/HD FORMATED DISKETTES

*With $5⁰⁰ mail-in rebate and purchase of two 25 packs. Sold in Packs of 25 for $11
#1612428

34¢* EA



024 X 768 ION-INTERLACED 4" SUPER GA MONITOR

24 X 768 • .28 Dot Pitch
on-Interlaced • One year Warranty
657506

$289

VGA 16-BIT CARD 1024 X 768

Super VGA 1024 X 768 Hires
256K epandable to 512K RAM
#1611564

$39⁹⁵

1024 X 768 14" MULTI-SYNC .28mm DOT PITCH SUPER VGA MONITOR

1024 X 768 • .28mm Dot Pitch
Multi Frequency Hi-Quality Super VGA Monitor
3 Modes of Super VGA • One year Warranty
#1671377

$289

PROFESSIONAL PRESENTATION PERFORMANCE

MEDIA VISION

PRO 16 MULTIMEDIA SYSTEM

Pro AUDIO Spectrum 16
NEC Multi Speed SCSI Multimedia CD-ROM
Average access 280ms • Sustained data transfer 300kB/sec
Burst rate 1.5MB • 64kB buffer
MACROMIND ACTION (Multimedia Presentation Software)
Windows 3.1 • Lotus 1-2-3 for Windows
Comptons M.M. Encyclopedia
#1679548

MPC Multimedia PC

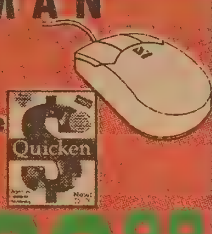
$848

MAXLITE/PC 4,000 OCKET ODEM END/RECEIVE FAX

V.32bis • Winfax #1695366

MX™ $319

MOUSEMAN PROGRAMMABLE 3 BUTTON MOUSE w/ Quicken Financial Software



Ergonomic Design • 400 DPI
Total Microsoft Compatibility
Serial & PS/2 Connectors
Fully Programmable
#1767061

LOGITECH

$69⁹⁹

IOMEGA

21MB 3.5" FLOPTICAL DRIVE PC

A standard floppy drive and a 21MB floppy drive in one.

- 21MB capacity on inexpensive 3.5" size media
- Read & writes to standard floppies
- Up to 3 times faster than floppies
- Holographic Optical Tracking (HOT) for higher performance and reliability than other flopticals
- New Laser Etched Disks from Iomega - each one is a master

#1765117

$379

TRANTOR MiniSCSI™

T338 MINI SCSI

POCKET SIZED • PARALLEL TO SCSI HOST ADAPTER • WITH DRIVERS, CD ROM, AND HARD DRIVE.
#1641482

$119⁹⁵

TERLINK ELECTRONICS

PortaPoint

ntly touch the unique
nsor button to control
h speed and
ection. PortaPoint
nes complete with a
/2 adapter, a quick-
ease Velcro
achment and a 3 1/
DOS driver diskette
1/4" available).
747825

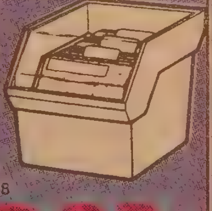
$64⁹⁹

ADAPTEC MULTI-MEDIA SCSI CONTROLLER

Multi-Media Extension CD-ROM
Software Module
Model AHA-1510 #1662043

$99⁹⁵

3.5" DISK FILE



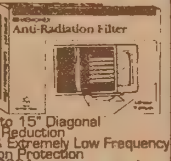
Holds 50 Diskettes
by Inland #1666988

$3⁹⁹

REDUCE RETINAL RADIATION

MEMOREX COMPUTER SUPPLIES

UNIVERSAL RADIATION FILTERS



For monitors up to 15" Diagonal
99% Glare Reduction
98% Very Low Frequency & Extremely Low Frequency
E-Field Radiation Protection
#1672921

$49⁹⁵

180 HANGING DISKETTES

FITS INTO STANDARD FILE DRAWERS. FOR 3.5" AND 5.25" DISKS
#1674060

$9⁹⁹

INI TOWER OMUTER ASE WITH 00 WATTS F POWER

1742428

$59⁹⁵

DANDY 3400 SCSI FLOPPY/HARD SCSI CONTROLLER

Controller for IBM/COMP.
Futer Domain ship set.
#1700538

$59⁹⁵

PARALLEL PRINTER BUFFER kansai

EXPANDABLE TO 8MB
USING 1 X 8 SIMM MODULES
27K Per Second Input
15K Per Second Thru-put
#1711462

$144⁹⁵

PERIPHERAL VERSATILITY

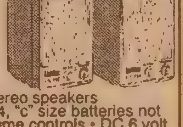
DB25 2 POSITION SWITCH BOX

Access 2 computers to 1 printer
or 2 printers to 1 computers
Serial/Parallel DB25-02 #1432891

$7⁹⁹

ENHANCE

SHIELDED COMPUTER SPEAKERS Labtec



High efficiency micro stereo speakers
Built-In power booster (4, "c" size batteries not included) Individual volume controls • DC 6 volt input jack 3.5mm stereo plug
CS-150
#1664001

$17⁹⁵

HOME OF FAST, FRIENDLY,
COURTEOUS SERVICE

FRY'S ELECTRONICS

Limit Rights Reserved
Not Responsible For
Typographical Errors

Prices good thru
June 21, 1993

STORE HOURS
MON - FRI
8AM - 9PM
SATURDAY
9AM - 8PM
SUNDAY
9AM - 7PM

SUNNYVALE 1177 Kern Ave. (408) 733-1770
CORPORATE P.O. FAX # (408)735-6800
PALO ALTO 340 Portage Ave. (415) 496-6000
CORPORATE P.O. FAX # (415) 496-6060
FREMONT 440 Mission Ct. (510) 770-FRYS(3797)
CORPORATE P.O. FAX # (510) 770-3700

VISA
MasterCard
VISA and MasterCard Accepted

MORE COMPUTER BUYS FROM FRY'S!

486DLC-33MHz COMPUTER SYSTEM
CYRIX 486DLC CPU

80486DLC 33MHz CPU
1MB RAM Expandable to 32MB
2 Hard/2 Floppy Controller
3.5" 1.44MB Floppy Drive • 101-Key Keyboard
Clock/Calendar • Case / Power Supply
Monitor Not included #1743603

$399

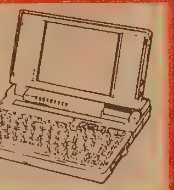
LEADING EDGE 386SX-20MHz 40MB VGA SYSTEM

14" COLOR MONITOR INCLUDED!

80386SX 20MHz CPU • 40MB Hard Drive
1MB of RAM • VGA Adapter • 14" Color Monitor
3.5" 1.44MB & 5.25" 1.2MB Floppy Drives
1 Parallel/2 Serial Ports • 101-Key Keyboard
MS DOS 5.0 • MS Windows
#1794078

$699

TOSHIBA T1850C SX/25C 120MB COLOR NOTEBOOK



SX-25MHz • 120MB Hard Drive
3.5" 1.44MB Floppy Disk Drive • 4MB RAM
Serial/Parallel • VGA Color Display • Passive
MS DOS 5.0 • Mouse Port #1748848

$2199

486SLC 33MHz 120MB NOTEBOOK

486SLC 33MHz CPU • 3.5" 1.44MB Floppy Drive
4MB RAM • 120MB Hard Drive • 5.5Lbs.
Serial/Parallel Ports • VGA Graphics
MS-DOS 5.0
#1786088

MITAC

$1699

LEADING EDGE 386SX 25MHz 80MB NOTEBOOK

386SX 25MHz CPU
4MB RAM
3.5" 1.44MB Floppy Drive • VGA Output
80MB Hard Drive • Microsoft DOS 5.0
Window Works • MS Windows • Mouse #1753190

$1199

LEADING EDGE 486SLC 25MHz *WINPRO* 80MB NOTEBOOK

80486SLC 25MHz CPU
80MB Hard Drive
4MB of RAM • 3.5" 1.44MB Floppy Drive
VGA Output • 1 Parallel/2 Serial Ports • MS DOS 5.0
MS Windows • Window Works #1767108

$1699

TOSHIBA T4400C/120 486SX 25MHz 120MB COLOR NOTEBOOK

80486SX 25MHz CPU • 120MB Hard Drive
256 Color Active Matrix Screen • 4MB RAM
3.5" 1.44MB Floppy Drive • Serial/Parallel
7.5lbs #1685385

$3599

Avanti 486SL-25MHz 80MB NOTEBOOK

25MHz 486SL CPU • 2MB RAM
80MB Hard Disk Drive • 1.44MB Floppy Drive
Serial/Parallel VGA • Fax/Modem included
Unique Pivoting Screen Saves Space #1766831

WHILE THEY LAST!!!

$1777

3M DC2120 120MB UNFORMATTED DATA CARTRIDGE

Extended Length Version
of DC2080
120MB - 307.5 ft of tape
#1490750

$17.95

5.25" DS/HD FORMATTED DISKETTES

LIFETIME WARRANTY

34¢ EACH

*After $5 mail-in rebate and purchase of two 25 packs. Sold regularly in packs of 25 for $11. #1612428

GEMINI DUAL ORIENTATION

Superior plastic case and power supply snap 220 watts smart fan in a drive work as Mini Tower or Desktop.
#1768659

$99.95

FELLOWES. MULTI MEDIA STORAGE TRAY

BOXES 80 3½" DISKETTES
BOXES 60 5¼" DISKETTES
CD-ROM OPTICAL DISKS

Stores 80- 3.5" Diskettes or 60- 5.25" Diskettes or 16- CD ROM or Data Cartridges.
#1648928

$4.99

Labtec SHIELDED COMPUTER SPEAKERS

High efficiency micro stereo speakers
Built-In power booster (4, "c" size batteries not included) Individual volume controls • DC 6 volt input jack 3.5mm stereo plug CS-150 #1664001

$17.95

Fry's ELECTRONICS

Home of Fast, Friendly, Courteous Service

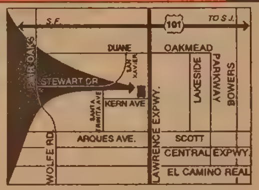
Prices good thru June 21, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

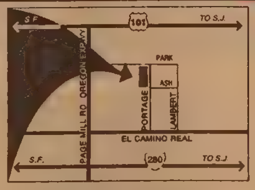
HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD

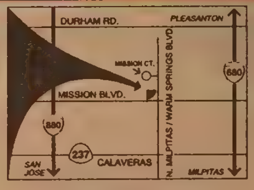
CORPORATE P.O. FAX #


S.F.
101
TO S.J.
FAIR OAKS
DUANE
LAKE XAVIER
OAKMEAD
STEWART DR.
SANTA TRINITA AVE
KERN AVE
LAWRENCE EXPWY.
LAKESIDE
PARKWAY
BOWERS
WOLFE RD.
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770
(408)735-6800


S.F.
101
TO S.J.
PAGE MILL RD.
OREGON EXPWY.
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S.F.
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT.
MISSION BLVD.
680
880
SAN JOSE
237
CALAVERAS
N. MILPITAS / WARM SPRINGS BLVD.
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

MEDIA VISION

PRESENTATIONS

MULTI MEDIA MOVIE MAKING

30 FRAMES PER SECOND

Pro MovieSpectrum™

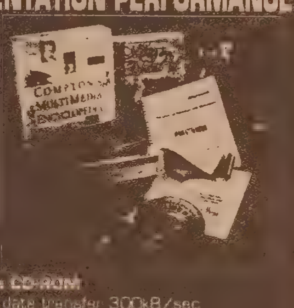
Pro MovieSpectrum™ is the total solution for playback, capture and editing video on your PC. Control video production including hue, saturation, brightness and contrast. Pro MovieSpectrum™ is fully compatible with Microsoft's Video for Windows and the AVI file formate. Control video sources with your keyboard or mouse. Search and edit video footage on your VCR, camcorder or laser disk player, directly from a control panel on your screen with a special RS-422 serial port on the card.

- No RAM or VGA feature connector required

#1744682

$298

PROFESSIONAL PRESENTATION PERFORMANCE



PRO 16 MULTIMEDIA SYSTEM

Pro AUDIO Spectrum 16
NEC Multi Speed SCSI Multimedia CD-ROM
Average access 280ms • Sustained data transfer 300kB/sec
Burst rate 1.5MB • 64kB buffer
MACROMIND ACTION (Multimedia Presentation Software)
Windows 3.1 • Lotus 1-2-3 for Windows
Comptons M.M. Encyclopedia
#1679548

$848

EXTERNAL CDPC SYSTEM [illegible] **$945**

MULTIMEDIA FOR THE HOME OR DORM

FUSION CD 16

CD-ROM/MULTIMEDIA KIT

ECONOMIC EDUCATION ENTERTAINMENT ENHANCEMENT

Pro Audio Spectrum 16 • Internal CD ROM • Labtec Speakers
Comptons Family Encyclopedia • Ultima Underworld
Wing Commander II With Speech PAK
Where in the World is Carmen San Diego Deluxe Edition
#1727003

$495

FUSION 16 EXTERNAL #1756562 **$509**

A COMPLETE CD QUALITY EXTERNAL MULTIMEDIA SOLUTION

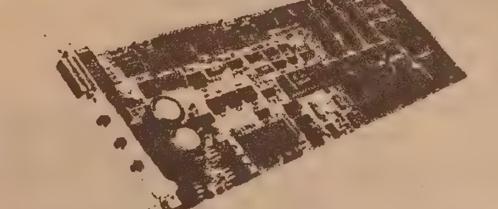
CDPC XL SUBSYSTEM EXTERNAL

DUAL SPEED 280ms 300KB THROUGHPUT CD-ROM

- 16 bit 44.1KHz direct to disk recording
- 100W Power Amplifier
- Multisource Analog mixer
- Standard Midi Interface

#17447[illegible]

$1199



PRO AUDIO SPECTRUM 16

- 20 voice, four operator stereo synthesizer OPL3
- 8, 12, and 16-bit PCM 2kHz-44kHz sampling and playback
- True SCSI interface
- Includes stereo studio f/x waveform sound editor TrackBlaster Pro-full mixing studio
- Recording session by MidiSoft MIDI sequencer
- Monolog text to speech synthesizer
- Sound effects & music library

#1679537

$149

PERFECT PRESENTATION PERIPHERAL

AUDIO PORT

- Perfect For Mobile Presentation
- Connects to standard Parallel Port
- Jacks For Microphone & Auxiliary Speakers
- 2-22KHz Sampling Rate
- Internal Battery Or +6VDC Adapter Included
- Wolfenstein 3D, Monopoly Deluxe
- Lotus Sound, Pocket recorder, Talking Calendar
- Free Labtech Headphones

#1679571

$139

Fry's ELECTRONICS

Home of Fast, Friendly, Courteous Service

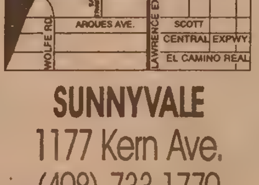
Prices good through June 21, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

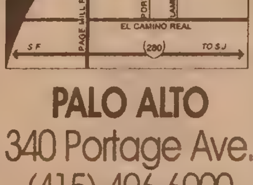
VISA AND MASTERCARD

CORPORATE P.O. FAX #



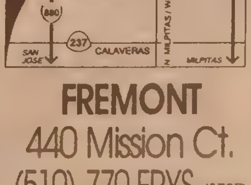
S.F.
101
TO S.J.
DUANE
OAKMEAD
KERN AVE
ARQUES AVE.
SCOTT
CENTRAL EXPWY
EL CAMINO REAL
WOLFE RD.
LAWRENCE EXPWY.
LAKESIDE
PARKWAY
BOWERS

SUNNYVALE
1177 Kern Ave.
(408) 733-1770
(408)735-6800



S.F.
101
TO S.J.
PARK
ASH
PORTAGE
LAMBERT
PAGE MILL RD. OREGON EXPWY
EL CAMINO REAL
S.F.
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060



DURHAM RD.
PLEASANTON
MISSION CT
MISSION BLVD
680
880
237
CALAVERAS
SAN JOSE
MILPITAS
N. MILPITAS / WARM SPRINGS BLVD

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

intel® intel® intel® intel®

Intel Smart Video Recorder

Intel Smart Video Recorder
intel

The Intel Smart Video Recorder gives you all the power and performance of one-step capture and compression. Now capture and compress quarter-screen video from VCRs, Camcorder, videodiscs and other video sources on 1/5 the hard disk space. And do it at least 15 times faster. The board's built-in i750® processor enables capture at the highest possible frame rate. Plug and shoot operation makes capture simple. Any 25MHz Intel 486™SX-based PC or higher can play your videos. An added bonus: $784 worth of free software, including Microsoft Video for Windows, Asymetrix Compel and MediaBlitz, and Firstlight GateKeeper.
#1781577

$549.95

Intel EtherExpress™ 16C LAN Adapter

The network card you can plug and forget.

Intel EtherExpress LAN Adapter
intel

ETHEREXPRESS 16C

8/16BIT BUS, AUI/BNC/RJ45 PORTS FOR 10 BaseT, THIN & THICK ETHERNET, PCLA8100

Using advanced technology to dramatically reduce chip count, Intel's EtherExpress™ ISA and MCA LAN adapters offer exceptional performance and reliability at an extraordinarily low price.
#1720947

$139.99

Intel EtherExpress™ 16TP LAN Adapter

The network card you can plug and forget.

Intel EtherExpress LAN Adapter
intel

ETHEREXPRESS 16TP

8/16BIT BUS, AUI/BNC/RJ45 PORTS FOR 10 BaseT ETHERNET, PCLA8120

Using advanced technology to dramatically reduce chip count, Intel's EtherExpress™ ISA and MCA LAN adapters offer exceptional performance and reliability at an extraordinarily low price.
#1720958

$109.98

Intel EtherExpress™ FlashC LAN Adapter

The network card you can plug and forget

Intel EtherExpress LAN Adapter
intel

ETHEREXPRESS FlashC

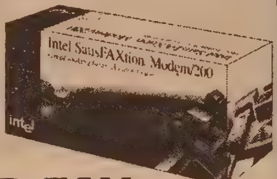
8/16BIT BUS, AUI/BNC/RJ45 W/FLASHSTART FOR DISKLESS SETUP, PCLA8105

With Intel's EtherExpress™ FlashC LAN adapters you can configure, manage and update networked PCs in one easy step. It's fast, affordable, and fully SNMP-compatible.
#1792766

$169.99

Intel SatisFAXtion. Modem/200

Great looking faxes. A cinch to use.


Intel SatisFAXtion Modem/200
intel

INTERNAL 2400 BAUD MODEM 9600 BAUD FAX

9600BPS FAX WITH 2400 V.42BIS
SMART LINE SHARE
AUTO FEATURE
#1699706

$299

Intel SatisFAXtion. Modem/300

The best modem. The best fax. Communicate with everyone.

Intel SatisFAXtion Modem/300e
intel

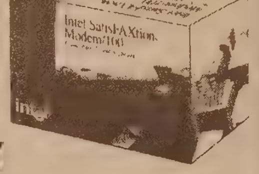
INTERNAL 14,400BPS DATA MODEM 9600 BPS FAX

14,400BPS data modem(v.32bis)
Up to 4:1 data compression 57,600bps(v.42bis)
High speed data buffer chip(16550 UART)
9600bps send/receive fax. Software included: FAX ability Plus, Crosstalk Communicator and DOS Fax software.
#1747010

$259

Intel SatisFAXtion. Modem/100

Data. Fax. Great software.


Intel SatisFAXtion Modem/100
intel

INTERNAL 2400 BAUD MODEM 9600 BAUD FAX

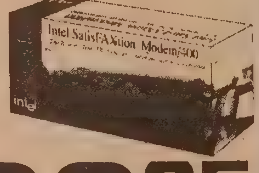
DOS/Windows
Crosstalk Communication Software
#1699647

$99.95

Intel SatisFAXtion. Modem/400

The best modem. The best fax. Communicate with everyone.

INTERNAL 14,000BPS BAUD MODEM 9600 BAUD FAX

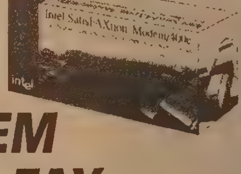

Intel SatisFAXtion Modem/400
intel

14,400 bps
Internal Modem
42 bis DTE
115,200 bps
Smart Line #1699681

$399.95

Intel SatisFAXtion. Modem/400e

The best modem. The best fax. Communicate with everyone.


Intel SatisFAXtion Modem/400e
intel

EXTERNAL 14,000BPS BAUD MODEM 9600 BAUD FAX

14,400 bps External Modem
42 bis DTE
115,200 bps
Smart Line
#1717815

$449

Home of Fast, Friendly, Courteous Service

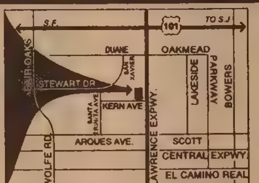
Fry's ELECTRONICS

Prices good through June 21, 1993

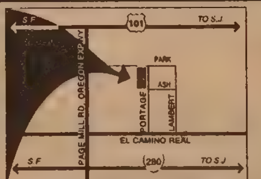
Limit Rights Reserved
Not Responsible For
Typographical Errors

STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM
VISA AND MASTERCARD

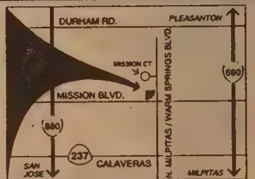
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S.J.
FAIR OAKS
DUANE
OAKMEAD
SAN XAVIER
STEWART DR
SANTA TRINITA AVE
KERN AVE
LAKESIDE
PARKWAY
BOWERS
WOLFE RD
ARQUES AVE.
LAWRENCE EXPWY.
SCOTT
CENTRAL EXPWY
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
OREGON EXPWY
PAGE MILL RD.
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S.F.
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT
MISSION BLVD.
N. MILPITAS / WARM SPRINGS BLVD.
680
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

MASS microsystems MASS microsystems MASS microsystems

MASS EXTERNAL SYQUEST 44 MAC

44MB EXTERNAL SYQUEST FOR MACINTOSH
20MS ACCESS W/ SOFTWARE
DD01P #1777938

$479

MASS EXTERNAL SYQUEST 88 MAC

88MB EXTERNAL SYQUEST FOR MACINTOSH
20MS ACCESS W/ SOFTWARE
DD8801 #1777949

$599

MASS MICRO EXTERNAL 120MB 2"

120MB EXTERNAL FOR MAC
15MS ACCESS • 2 X 4 . 7 X 7.9
Some Macs may require external power supply.
DD120P2 #1777916

$349

MASS EXTERNAL 120MB HARD DRIVE

120MB EXTERNAL HARD DRIVE FOR MAC
15MS ACCESS
DD120 #1777891

$449

210MB MAC EXTERNAL 2" HARD DRIVE

210MB EXTERNAL FOR MAC
15MS ACCESS
DD120P2 #1777927

SOME MAC'S MAY REQUIRE EXTERNAL POWER SUPPLY.

$499

MASS EXTERNAL 210MB HARD DRIVE

210MB EXTERNAL HARD DRIVE FOR MAC
15MS ACCESS
DD210 #1777905

$549

UMAX

600 DPI COLOR MAC SCANNER WITH APPLE INTERFACE

PHOTOSHOP SOFTWARE
UC630MAC
#1771792

600 DOTS PER INCH HARDWARE!

$1299

600 DPI GREYSCALE SCANNER WITH APPLE INTERFACE

256 SHADES OF GREY
SCAN OFF OF MAC
#1771806

600 DOTS PER INCH HARDWARE!

$999

Home of Fast, Friendly, Courteous Service

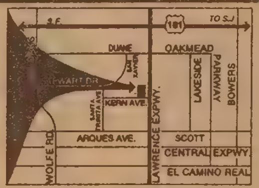
Fry's ELECTRONICS

Prices good through June 21, 1993

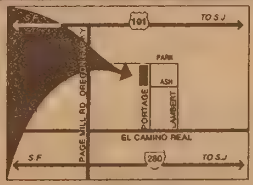
Limit Rights Reserved
Not Responsible For
Typographical Errors

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

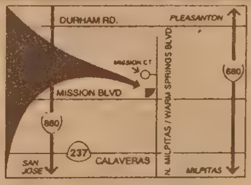
VISA AND MASTERCARD


S.F.
101
TO S.J.
DUANE
OAKMEAD
STEWART DR.
SANTA TRINITA AVE
KERN AVE.
LAWRENCE EXPWY.
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE.
SCOTT
CENTRAL EXPWY
WOLFE RD.
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
PARK
ASH
PAGE MILL RD.
OREGON
PORTAGE
LAMBERT
EL CAMINO REAL
S.F.
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000

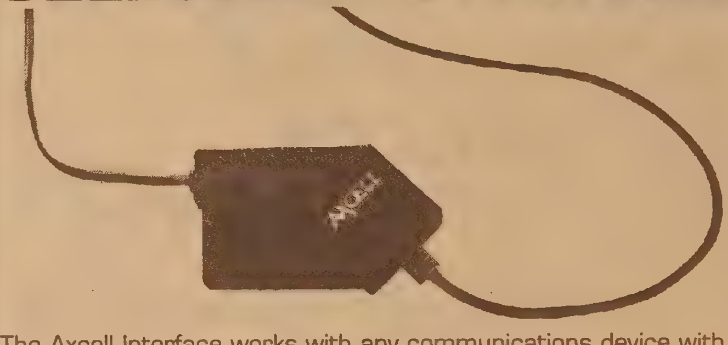

DURHAM RD.
PLEASANTON
MISSION CT
MISSION BLVD
680
N. MILPITAS / WARM SPRINGS BLVD
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)

CORPORATE P.O. FAX # (408)735-6800 (415) 496-6060 (510) 770-3700

ÆE
APPLIED ENGINEERING®

AXCELL MACINTOSH POWERBOOK CELLULAR INTERFACE



The Axcell Interface works with any communications device with standard RJ11 jack. It is compatible with many portable, transportable and mobile cellular phones. Hooks up to your powerbook fax modem to give you true portable worldwide communications.

#1771758 NEC **$299**

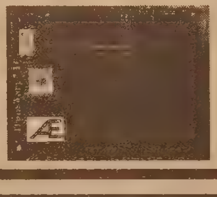
#1771747 OKI **$299.99**

POWERBOOK FAX/MODEM

INTERNAL 14.4/14.4 FAX MODEM WITH VOICE MAIL FOR ALL EXCEPT 100
#1771736 **$499.99**

TRANSWARP 4340 ACCELERATOR

LC AND LC II TRIPLE THE SPEED 68030/25MHz ACCELERATOR #1771769



$399

SIGMA DESIGNS®

ColorMax™ 15

Color display for Macintosh PowerBook 160, 180 and Duo computers

ColorMax 15 is a desktop plug-and-play color display ideal for use when creating big impact color presentations, multimedia demos and other serious color graphics applications in PowerBook computing environment. ColorMax 15 works with Macintosh PowerBook 160 and 180, and Powerbook Duos with Duo Dock and Duo MiniDock. It also works with Macintosh LC,IIsi, IIci, IIvi, IIvx and Quardra series computers.

#1764998 **$799**

PageView GS™

Full-page greyscale display system for the Macintosh computer

Full Range of
256 Grays

PageView GS is a cost-effective flat 15" greyscale portrait display ideal for displaying a full page of text or graphics. It can view an entire page of images without scrolling. PageView GS also meets the latest Swedish guidelines for reduced VLF/ELF magnetic field emmisiions for your comfort and peace of mind. Other ergonimic features include sharp focus, high refresh rate, tilt/swivel base and optional anti-glare, anti-static coating. And PageView GS comes in two colors - granite or platinum - designed to match your Macintosh computer.

#1764987 **$599**

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

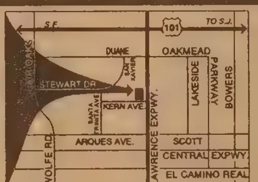
Prices good through June 21, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

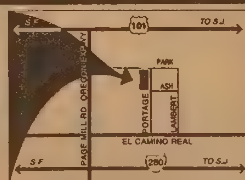
HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD

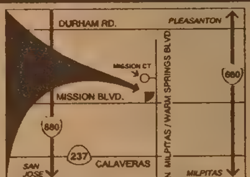
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S.J.
DUANE
OAKMEAD
SAN XAVIER
STEWART DR.
KERN AVE.
SANTA TRINITA AVE
LAWRENCE EXPWY.
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL
WOLFE RD.

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
OREGON EXPWY
PAGE MILL RD
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S.F.
280
TO S.J.

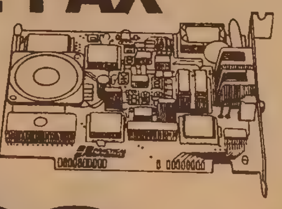
PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT
680
MISSION BLVD.
N. MILPITAS / WARM SPRINGS BLVD
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

COMPUTER PERIPHERALS, INC.™

14400 BAUD INTERNAL FAX MODEM



INTERNAL 14400BPS MODEM AND
14400BPS FAX • V.42
WINFAX SOFTWARE
#1729382

$199

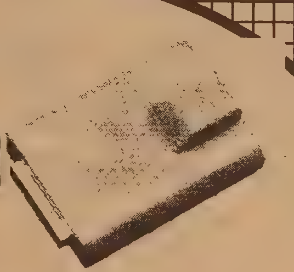
VIVA 14.4 EXTERNAL FAX/MODEM

14,400 BPS V.32 BIS

9600B Send/Receive Fax 14,400BPS
Modem CPI 502402 #1704646

$239.99

VIVA 2400/9600 SEND AND RECEIVE POCKET MODEM



504106
#1704679

$109

2400 BAUD EXTERNAL MODEM

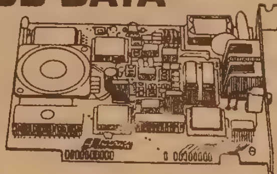
EXTERNAL MODEM/2400 BAUD
MODEM W/ PRODIGY START UP
KIT HAYES COMP W/SOFTWARE
#1622236

HOOK-UP 2400SE

$69.95

VIVA INTERNAL 9600 SEND FAX AND 4800 RECEIVE WITH 2400B DATA MODEM

504504
#1704691



$52.99

VIVA EXTERNAL 2400 MODEM 9600 SEND 4800 RECEIVE FAX

504509
#1733150

HOOK-UP 2400SE

$74.99

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

Prices good through June 21, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

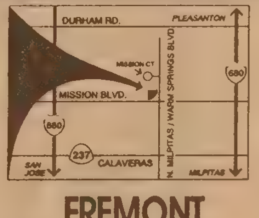
VISA AND MASTERCARD

S.F.
101
TO S.J.
DUANE
OAKMEAD
STEWART DR.
KERN AVE.
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL
WOLFE RD.
LAWRENCE EXPWY.

SUNNYVALE
1177 Kern Ave.
(408) 733-1770

S.F.
101
TO S.J.
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
280
PAGE MILL RD.
OREGON EXPWY.

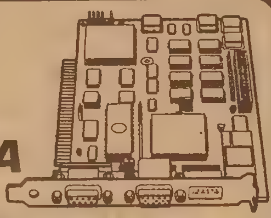
PALO ALTO
340 Portage Ave.
(415) 496-6000


DURHAM RD.
PLEASANTON
MISSION CT.
680
MISSION BLVD.
880
237
CALAVERAS
SAN JOSE
N. MILPITAS / WARM SPRINGS BLVD.
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)

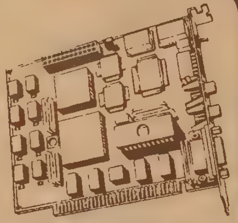
CORPORATE P.O. FAX # (408)735-6800 (415) 496-6060 (510) 770-3700

VIDEO SEVEN



1024 X 768
WIN. VGA
ACCELERATOR CARD
HIGH RESOLUTION VGA
OPTIMIZED FOR
FAST WNDOWS
PERFORMANCE **$118**

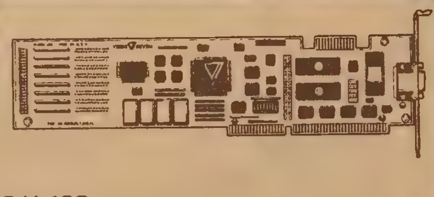
1024 X 768 • 1MB RAM • 256 Colors Graphics Accelerator
Flicker Free Refresh Rate #1689404



1024i
VIDEO CARD
w/512K RAM

For PC/XT/AT, PS/2
Model 30
50% Faster than standard VGA
#1689415

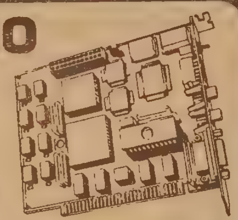
$\$69^{95}$



VRAM II
512K

16-BIT VGA/EGA/CGA/MDA
1024 X 768 / 800 X 600 / 640 X 480
512K up to 1MB
#1448214

$\$89^{95}$

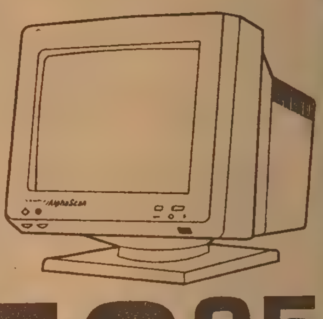


1280 X 1024WIN.PRO
24-BIT HI-SPEED
WINDOWS
ACCELERATOR CARD

1280 X 1024 Max Resolution
Up to 16 Million Colors
1MB
#1753189

$\$189^{95}$

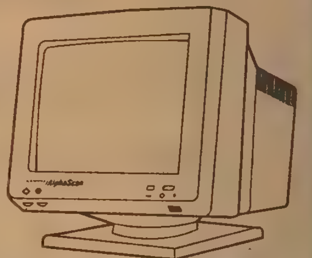
SAMPO
A M E R I C A



1024 X 768
NON-INTERLACED
14" SUPER
VGA MONITOR

1024 X 768 • Non-Interlaced
Flat Screen • INVAR Shadow Mask
70HZ Refresh VESA
15" Large Screen
SAMPO KDM-1466
#1691731

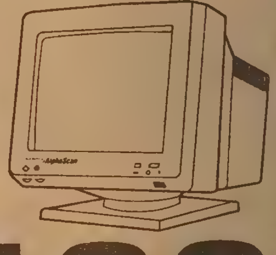
$\$379^{95}$



1024 X 768
NON-INTERLACED
15" SUPER
VGA MONITOR

1024 X 768 • Non-Interlaced
Flat Screen • INVAR Shadow Mask
70HZ Refresh VESA • 15" Large Screen
SAMPO KDM-1566 #1691742

$\$499^{95}$



1024 X 768
NON-INTERLACED
20" SUPER
VGA MONITOR

1024 X 768
Non-Interlaced .31 Dot Pitch
Flat Screen
INVAR Shadow Mask
70HZ Refresh VESA
20" Large Screen
SAMPO KDM-2055
#1691764

$1199

Fry's ELECTRONICS

Home of Fast, Friendly,
Courteous Service

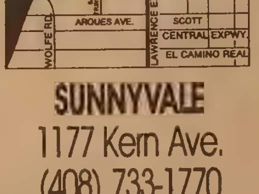
Prices good through
June 21, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

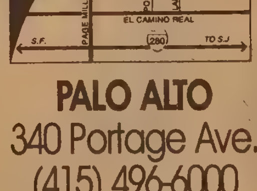
STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA MasterCard
VISA AND
MASTERCARD

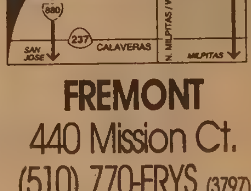
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S.J.
DUANE
OAKMEAD
SAN XAVIER
STEWART DR.
KERN AVE.
SANTA PARITA AVE
LAWRENCE EXPWY.
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
WOLFE RD.
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
PARK
ASH
PORTAGE
LAMBERT
PAGE MILL RD. OREGON EXPWY.
EL CAMINO REAL
S.F.
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT
680
MISSION BLVD.
N. MILPITAS / WARM SPRINGS BLVD
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

USRobotics®

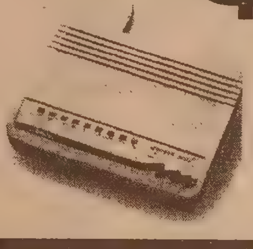
The Intelligent Choice in Data Communications

SPORTSTER®

UP TO 57,600 BPS THRU-PUT WITH V.32 BIS!

$205

14,400 BAUD EXTERNAL MODEM WITH 14,400 FAX BAUD FAX



V,32BIS, V.42/MNP2-4, VI42BIS/MNP 5
WITH 57,600 BPS THRU-PUT W/V.32BIS
#1704495

SPORTSTER®

$195

14,400 BAUD INTERNAL MODEM WITH 9600 BAUD FAX

UP TO 57,600 BPS THRU-PUT WITH V.32 BIS!

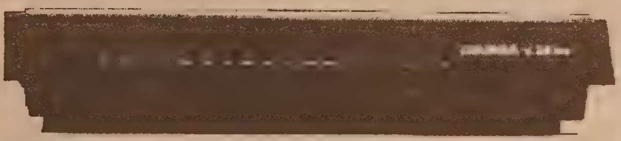
V,32BIS, V.42/MNP2-4, VI42BIS/MNP 5
WITH 57,600 BPS THRU-PUT W/V.32BIS #1704484

COURIER™

$799⁹⁵

14,400 BAUD EXTERNAL HST DUAL STANDARD MODEM w/MNP1-5

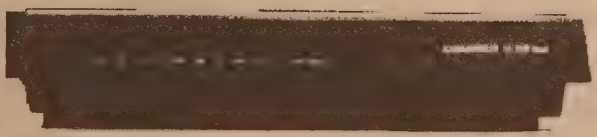
US Robotics HST Dual Standard Modems
14,400 Baud Courier
V.32BIS, V.32, V.42, V.42BIS External
US Robotics #000093-0 #1639074



COURIER™

$499

14,400 BAUD EXTERNAL MODEM w/MNP1-5



US Robotics 14,400 Baud Courier Modems
V.32BIS, V.32, V.42, V.42BIS
External MNP1-5
US Robotics #000094-0 #1639030

Home of Fast, Friendly, Courteous Service

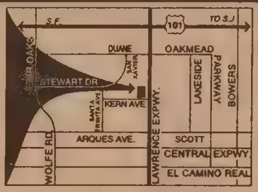
Fry's ELECTRONICS

Prices good through June 21, 1993

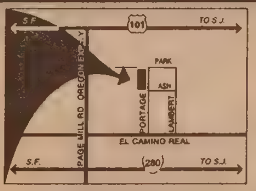
Limit Rights Reserved
Not Responsible For
Typographical Errors

STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

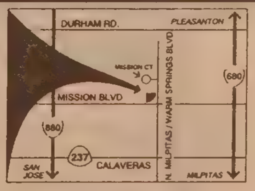
VISA AND MASTERCARD


S.F.
101
TO S.J.
SAN TOMAS
DUANE
SAN ZAYIER
OAKMEAD
STEWART DR
SANTA TRINITA AVE
KERN AVE
LAKESIDE
PARKWAY
BOWERS
LAWRENCE EXPWY.
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
WOLFE RD
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770
(408)735-6800


S.F.
101
TO S.J.
OREGON EXPWY
PAGE MILL RD
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S.F.
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT
680
MISSION BLVD
N. MILPITAS / WARM SPRINGS BLVD
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

CORPORATE P.O. FAX #

MICROSPEED

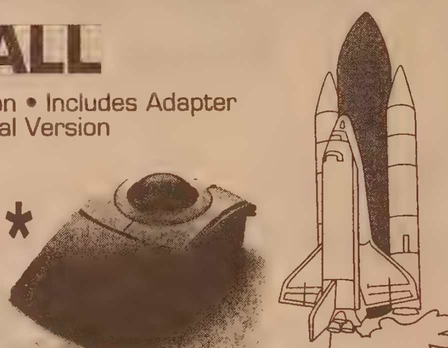
DURABLE, DEPENDABLE, DOMESTIC

USED IN ORBIT ON NASA SPACE SHUTTLE!

TRACKBALL

50 to 1000 DPI Resolution • Includes Adapter
Palm Size Trackball • Serial Version
#1285034

$\$49^{95}$*



*After manufacturer's rebate. In-store cost $\$59^{95}$

For PS/2 #1495054 $\$69^{95}$*
*After manufacturer's rebate. In-store cost $\$79^{95}$

MADE IN U.S.A.

MACTRAC.

FOR MAC SE, II AND APPLE IIGS
#1499531

$\$69^{95}$*

*After manufacturer's rebate. In-store cost $\$79^{95}$

MICROTRAC PC

Size 2.8" x 2.0" x1.25" • Weight 4.0 Oz
50 - 9600 DPI • Microsoft Compatible
Mounting Bracket Included • Serial & PS/2 Connectors • Drag-Lock Button
#1621903

For MAC #1660591 $\$48^{88}$*
*After manufacturer's rebate. In-store cost $\$58^{88}$

$\$48^{88}$*

*After manufacturer's rebate. In-store cost $\$59^{88}$

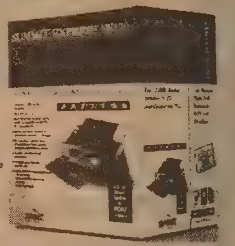
101-KEY KEYBOARD

For ATs, PS/2, Laptops, and notebooks. Includes adapter.
#1796379

$\$44^{99}$

SUMMIT™ MEMORY SYSTEMS INC. SUMMIT™ MEMORY SYSTEMS INC. SUMMIT™ MEMORY SYSTEMS INC.

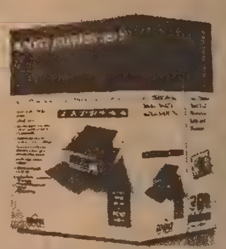
WINDOWS ENVIRONMENT 120MB TAPE BACK-UP



Now you can safeguard your data and end the drudgery of floppy disk backup. Check out this value!
A field-proven high quality tape drive
40/60/80/120MB BACKUP Dual Media
Central Point Back-Up software for DOS and Windows, plus virus detection • 2 year warranty
60 day satisfaction or your money back guarantee.
Model SE120
#1635575

$158

SUMMIT EXPRESS 250MB TAPE BACK-UP



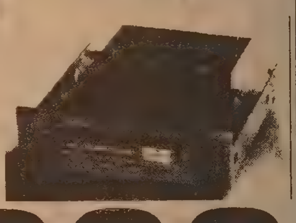
Now you can safeguard your data and end the drudgery of floppy disk backup. Check out this value!
A field-proven high quality tape drive
40/60/80/120/250MB Backup
Dual-media Central Point Backup software for DOS and Windows, plus virus detection.
2 year warranty 60 day satisfaction-or-money-back guarantee.
Model SE250 #1635586

$228

SUMMIT EXTERNAL CASING FOR SE120 AND SE250
#1735266

$\$69^{99}$

SUMMIT EXPRESS 305MB TAPE BACK-UP INTERNAL IDE



Now you can safeguard your data and end the drudgery of floppy disk backup. A field-proven high quality tape drive. High-Speed Backup up to 12MB per minute.
Runs off IDE Hard Drive Controller
2 year warranty.
60 day satisfaction-or-money-back guarantee
Model SE305
#1659405

$299

ACCELERATOR BOARD
FOR SE120 AND SE250 SPEEDS UP BACK-UP THRU-PUT TO 7MB A MINUTE! #1651186

$\$89^{95}$

Home of Fast, Friendly, Courteous Service

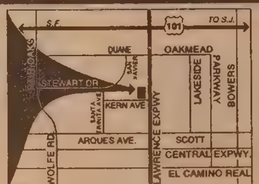
Fry's ELECTRONICS

Prices good through June 21, 1993

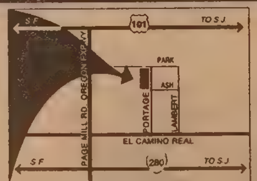
Limit Rights Reserved
Not Responsible For
Typographical Errors

STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

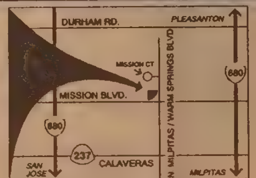
VISA MasterCard
VISA AND MASTERCARD


S.F.
101
TO S.J.
DUANE
OAKMEAD
SAN AVIER
STEWART DR
KERN AVE
SANTA TRINITA AVE
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL
WOLFE RD
LAWRENCE EXPWY

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
OREGON EXPWY
PARK
ASH
PORTAGE
LAMBERT
PAGE MILL RD.
EL CAMINO REAL
S.F.
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000


DURHAM RD.
PLEASANTON
MISSION CT
680
MISSION BLVD.
N. MILPITAS / WARM SPRINGS BLVD
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)

CORPORATE P.O. FAX # (408)735-6800 (415) 496-6060 (510) 770-3700

maxell

Always a Generation Ahead

maxell
MF2HD
3½" 10 PCS.

+

HIGH BIAS
CD
maxell
XLII
90

= GREAT DEAL

MF2-HDM
3.5" DS/HD DISKS
#139540
$\$9^{99}$

MAXELL XLII-90 AUDIO TAPE
FREE

SPECIALIZED ROCKHOPPER FS
RETAIL VALUE $899

ENTER TO WIN ONE OF THREE MOUNTAIN BIKES.

Maxell Bike drawing held in each store.
Look for the bike at the Maxell display.
EXCLUSIVELY AT FRY'S

DC 2000R 40MB 205 FT $\$12^{99}$
DC2000 COMPATIBLE
#1630606

DC6250R 250MB 1/4" TAPE $\$23^{99}$
1020FT. #1720224

CS-600 XD 155MB $\$15^{95}$
#1527218

DC2120R XIMAT 120MB $\$21^{99}$
#1720246

DC 2120R 120MB $\$16^{99}$
#1720235

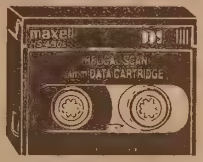
DC6150 150MB 1/4" TAPE $\$18^{59}$
650FT. #1630592

OC-012 M/O 128MB
3.5" REWRITABLE
OPTICAL
NEW
$\$53^{99}$
#1764127

HS-4CL 4mm CLEANING KITS
Cleaning Kit for 4mm Tape Drives
Good for 40 cleanings
#1630569
$\$14^{99}$

maxell
HS-8/112

HS-8/112 DATA CARTRIDGE
2.5 Gigabyte 8mm
Helical-Scan Data Cartridge
#1527230
$\$11^{95}$


maxell
HS-4/90
HELICAL SCAN 4mm DATA CARTRIDGE

HS-4/90 DATA CARTRIDGE
2 Gigabyte 4mm
Helical-Scan Data Cartridge
#1630558
$\$15^{49}$

maxell
MD2D
5¼" 10 PCS
maxell
MF2HD
3½" 10 PCS.

MAXELL DISKETTES

MD2-D FRMT 5.25" DS/DD DISKS #1495674	$\$5^{49}$
MD2D 5.25" DS/DD DISKS #139880	$\$4^{98}$
MD2HD 5.25" DS/HD DISKS #94858	$\$7^{49}$
MF2-DDM 3.5" DS/DD DISKS #121465	$\$6^{98}$
MF2-DD FRMT 3.5" DS/DD DISKS FORMATTED #1495 696	$\$7^{99}$
MF2-HD FRMT 3.5" DS/HD DISKS FORMATTED #1495700	$\$11^{49}$
MF2-HD MAC FRMT 3.5" DS/HD DISKS MAC FORMATTED #1764116	$\$12^{49}$

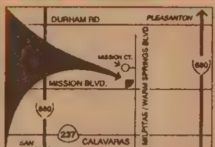
Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

Prices good thru June 21, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

S F
101
TO S J
DUANE
OAKMEAD
LAKESIDE
PARKWAY
BOWERS
SAN TOMAS EXPWY
FAIR OAKS
LAWRENCE EXPWY
ARQUES AVE.
CENTRAL EXPWY.
EL CAMINO REAL


DURHAM RD
PLEASANTON
MISSION CT.
MISSION BLVD.
680
880
237
CALAVARAS
SAN JOSE
N MILPITAS / WARM SPRINGS BLVD
MILPITAS

S F
101
TO S J
PARK
ASH
PORTAGE
LAMBERT
PAGE MILL RD OREGON EXPWY
EL CAMINO REAL
S F
280
TO S J

SUNNYVALE
1177 Kern Ave
(408) 733-1770

FREMONT
440 Mission Ct.
(510) 770-FRYS(3797)

PALO ALTO
340 Portage Ave.
(415) 496-6000

CORPORATE P.O. FAX NUMBER
(408) 735-6800 (510) 770-3700 (415) 496-6060

HOURS
MON-FRI
8AM-9PM
SAT 9AM-8PM
SUN 9AM-7PM

MasterCard VISA
VISA AND
MASTERCARD
ACCEPTED

SUPER SOFTWARE DEALS AT FRY'S

BORLAND DBASE IV

Version 2.0 for DOS

New dBASE IV version 2.0 is up to 10 times faster than previous versions. dBASE IV's usability, versatility, reliability and power have made it the PC standard. Users can easily perform data management tasks without programming. Developers can use the automated tools and the dBASE language to build better applications faster.

IBM

$99.95

#1786206

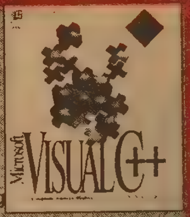
THE SEVENTH GUEST CD-ROM

The Seventh Guest is the first interactive drama in a terrifyingly real, virtual environment complete with live actors. Key Features:

- Video clips with live actors
- Bizarre games and puzzles
- 22 fully-rendered rooms to explore in a fully 3-D haunted mansion with ghostly surprises lurking in every shadow.

$59.95

IBM
#1744361



Microsoft Visual C++

Microsoft Visual C++ combines the power of reusable, prebuilt code with a seamless, visual environment to shorten the development process. Design user interfaces, build, debug, and browse using a set of tightly integrated tools, while "wizards assist you with fundamental tasks for maximum productivity. It's the fast, powerful way to program in C++!

$139.95

IBM
#1779435

CLARIS FileMaker Pro For Windows

Whether you're a first-time database buyer or an advanced user, FileMaker Pro makes sure you're productive in minutes. There's no more versatile way to manage, present, and share your data.

$129.95

IBM
#1741450

INCREDIBLE SPECIAL OFFER
QEMM-386 & 3 HOT GAMES

Quarterdeck QEMM-386 6.0 GAME PACK

The #1 Memory Manager and Three of the Best PC games in one single package, with a very low, low affordable price!

- Qemm-386 6.0 • Aces of the Pacific
- Front Page Sports: Football • Ultima Underworld II

$84.95

Limited Offer Only
IBM
#[illegible]

BORLAND Turbo C++

Visual Edition for Windows

Turbo C++ Visual Edition for Windows is simply the best visual C and C++ compiler and tools for fast Windows application development— it's now available at a great price!

IBM
#1778021

$79.95

BABY.

B.A.B.Y. (Birth And Baby Years) in a computerized guide that leads you from Pre-pregnancy to after your child is born, Some of the feature:

- Conception conditions, genetics and fertility chart.
- Pregnancy detection and development of fetus.
- Health information including diet and excises.
- Birth process.
- Feeding schedules.

IBM
#1793697

$35.95

STRIKE COMMANDER

Strike Commander is the best flight simmulator with a real cinematic story. You will command a squadron with F16 and F-22 to fight your enemies. You have up to 40 missions to accomplish. It's a true 3-D with a minimum requirement of 386 with 4 megs of RAM. It supports major sound cards.

ORIGIN *We create worlds*

$49.95

IBM
#1736474

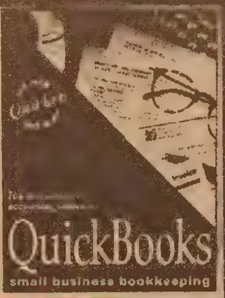
SOFTLOGIC SOLUTIONS WINSENSE

WinSence gives you the facts you need to make the safest, most intelligent decisions about optimizing your system. Key features:

- Improved Windows performance
- Automatic fine tuning based on the way you work
- Interactive editing of Windows Configuration (INI) files.
- Detailed guide to more then 350 windows setting options.

$59.95

IBM
#1785892



Intuit QuickBooks

SMALL BUSINESS BOOKEEPING

New QuickBooks™ manages all your small business finances with the power and ease of Quicken. No accounting knowledge is ever needed and it is loaded with more tools to help run your business better.

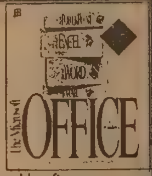
#1673678 **$89.95**

PC TOOLS FOR WINDOWS

PC TOOLS For Windows gives you a better way to work in Windows today. Increasing your productivity, protecting your data and boosting your system's performance. New features includes multi desk and WinShield.

IBM
#1786093

$129.95



Microsoft Office for Windows Upgrade

There's never been a better time to move from your old software to a new Office. Get the latest version of The Microsoft® Office for Windows™ at a special price when you upgrade from Lotus® 1-2-3®, Harvard Graphics®, or any other qualifying spreadsheet, word processing, or presentation graphics program for the MS-DOS® or Windows operating system.

IBM
#1783085

$369

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

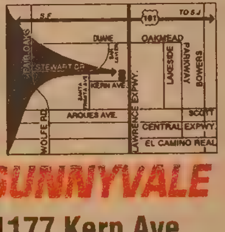
Prices good through June 21, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

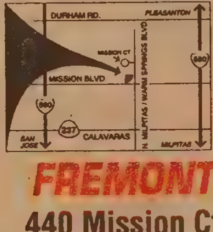
HOURS
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

CORPORATE P.O. FAX #

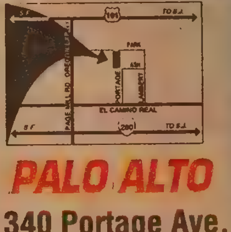
MasterCard
VISA
VISA AND MASTERCARD ACCEPTED



SUNNYVALE
1177 Kern Ave.
(408) 733-1770
(408)735-6800



FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700



PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060

EPSON®

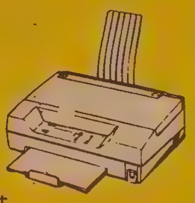
WHEN YOU'VE GOT AN EPSON
YOU'VE GOT A LOT OF COMPANY

EPSON'S NEW SCALABLE FONT DOT MATRIX PRINTERS HAVE BEEN WILDLY SUCCESSFUL - AND FRY'S™ HAS THEM!

EPSON Roman And San Serif- SCALABLE From 8 To 32 Points 9 Resident Bit-Mapped Fonts As Well As Top, Rear, Bottom and Front Paper Feed Paths • Automatic Single Sheet And Continuous Form Convertible Push/Pull Tractor • True 360 X 360 DPI Resolution for Professional Quality Graphics • 2 Year Warranty

EPSON® ActionPrinter™ 3250

24 PIN PRINTER



50 Sheet Paper Cassette Tray • Quiet ESC/P2 Control Language • Simple Control Panel • Two Year Warranty

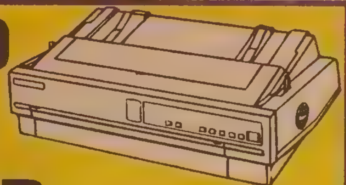
AP-3250
#1667299

$199

LQ-570

24 PIN PRINTER

w/ SCALABLE FONTS!

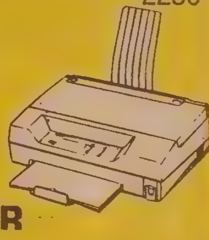


80 Column • 252 CPS Draft Mode
84 CPS Letter Quality
#1612004

$239

EPSON® ActionPrinter™ 2250

9 PIN IMPACT

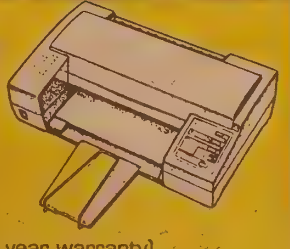


DOT MATRIX PRINTER

50 Sheet Paper Cassette Tray
240 CPS Draft, 48 CPS NLQ
Quiet • 2 Year Warranty
#1729120

$129

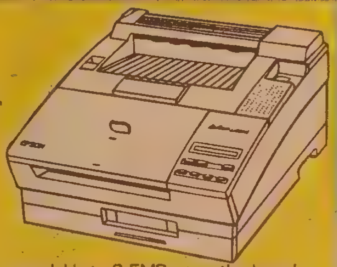
EPSON Stylus 800 INK JET PRINTER



EPSON C106001
Stylus 800 Ink Jet Printer (2 year warranty)
360 X 360 DPI "Laser-Sharp" printing
ESC/P2 LQ 7 Type Face with 4 Scalable Fonts
#1782785

$349.99

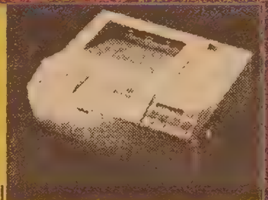
EPSON® ActionPrinter™ 1000



Fast six pages per minute print speed makes you more productive. HP LaserJet IIP and Epson dot matrix compatible. 14 resident fonts. 512KB memory expandable to 6.5MB on motherboard. 6000-page, single element imaging cartridge. Optional Adobe Postscript. Two year limited warranty.
#1760237

$649.95

EPL-8000 LASER PRINTER



10 Pages Per Minute • 300 DPI
1MB RAM Expandable to 7.5MB
250 Sheet Paper Tray • Resident Fonts
Scalable Fonts • Serial/ Parallel Interfaces
HP LaserJet III Emulation • 2 Year Warranty
#1667288

$899

Service EPSON® Extra Care Certificate

for 1 year extended warranty service

9-Pin Printer $\$39^{95}$ 24-Pin Printer $\$59^{95}$

EPSON EXTRAS!

EPSON C8223051 SERIAL INTERFACE	Serial Interface for the Epson Actionlaser II, LQ70 & EPL8000 #1658552	$\$69^{95}$
EPSON IBS300 TONER CARTIDGE	For EPL-6000 Laser Printer • Rated at 1500 Pages #1480746	$\$21^{99}$
EPSON IBS301 DRUM/CHARGER UNIT	For EPL-6000 Laser Printer • Rated at 10,000 Pages #1480757	$\$109^{95}$
EPSON S050002 TONER	For the ActionLaser II #1658518	$\$99^{99}$
7762 EPSON RIBBON	Fits LQ-2500/2552/860 Black Ribbon #1419021	$\$9^{95}$
8766 EPSON RIBBON	Fits DFX-5000/8000 Black Ribbon #1424867	$\$24^{95}$
7763 EPSON RIBBON	Fits LQ-2500/2550/860 4-COLOR RIBBON #1445211	$\$19^{95}$
7764 EPSON RIBBON	Fits LQ-2550/860 BLACK FILM RIBBON #1463879	$\$12^{99}$
7768 EPSON RIBBON	Fits LQ-850/500/510, L-1000/4000 BLACK FILM RIBBON #1463880	$\$9^{95}$
7770 EPSON RIBBON	Fits LQ-1000/1010/1050, L-510, AP-4500 BLACK FILM RIBBON #1463905	$\$11^{99}$
EPSON 3250 RIBBON	3250 RIBBON 4/AP PRINTER S015032 #1667303	$\$7^{95}$
EPSON S015047 RIBBON	FOR EPSON AP 2250 PRINTER #1751707	$\$7^{99}$

Home of Fast, Friendly, Courteous Service

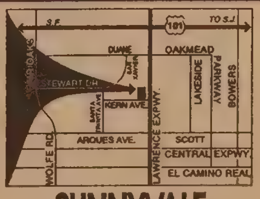
Fry's ELECTRONICS

Prices good thru June 21, 1993

Limit Rights Reserved
Not responsible for typographical errors.

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD ACCEPTED

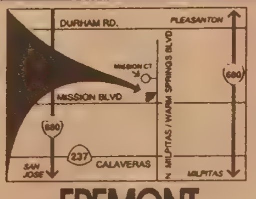


S.F.
101
TO SJ
DUANE
OAKMEAD
STEWART DR.
KERN AVE.
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL
WOLFE RD.
LAWRENCE EXPWY.

SUNNYVALE
1177 Kern Ave.
(408) 733-1770

S.F.
101
TO SJ
PARK
ASH
PORTAGE
LAMBERT
PAGE MILL RD. OREGON EXPWY
EL CAMINO REAL
280

PALO ALTO
340 Portage Ave.
(415) 496-6000



DURHAM RD.
PLEASANTON
MISSION CT
MISSION BLVD
MILPITAS / WARM SPRINGS BLVD
680
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)

CORPORATE P.O. FAX # (408)735-6800 (415) 496-6060 (510) 770-3700

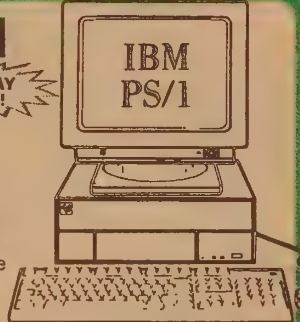
WE'LL BEAT ANY IBM PRICE IN TOWN

WE GUARANTEE IT!!!

IBM Business Partner
Authorized
Personal
Computer
Dealer

IBM PS/1 AT BUS
EXPERT S53

VGA DISPLAY INCLUDED!



486SX-25MHz
129MB VGA SYSTEM

Intel 80486SX-25MHz CPU • 129MB Hard Drive
4MB RAM Expandable to 32MB
3.5" 1.44MB Floppy Drive • 3 AT Slots
3 Drive Bays • IBM 14" VGA Color Monitor
IBM Mouse & Keyboard • 2400 bps Internal Modem
Novell® certified
IBM Quality and Reliability: The PS/1 Expert is built to IBM's exacting standards for quality and reliability.
Preloaded Software – "All You Need In One Box!": IBM DOS 5.0 • Microsoft Windows 3.1
MS Works for Windows • Tutorial, Index • Prodigy
Fitness • Virus check • Promenade • Address Book Plus
Support and Service: The exclusive online PS/1 Club™ answers your computing questions 20 hours a day, 365 days a year.

intel inside

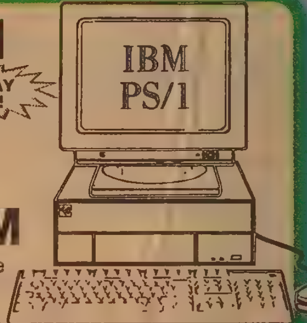
IBM Business Partner
Authorized
Personal
Computer
Dealer

MODEL 2133-S53
#1735820

$1299

IBM PS/1 AT BUS
EXPERT S54

VGA DISPLAY INCLUDED!



486SX-25MHz
170MB SVGA SYSTEM

Intel 80486SX-25MHz CPU • 170MB Hard Drive
4MB RAM Expandable to 32MB
3.5" 1.44MB Floppy Drive • 5 AT Slots
3 Drive Bays • IBM 14" .28 SVGA Color Monitor
IBM Mouse & Keyboard • 2400 bps Internal Modem
Novell® certified
IBM Quality and Reliability: The PS/1 Expert is built to IBM's exacting standards for quality and reliability.
Preloaded Software – "All You Need In One Box!": IBM DOS 5.0 • Microsoft Windows 3.1
MS Works for Windows • Tutorial, Index • Prodigy
Fitness • Virus check • Promenade • Address Book Plus
Support and Service: The exclusive online PS/1 Club™ answers your computing questions 20 hours a day, 365 days a year.

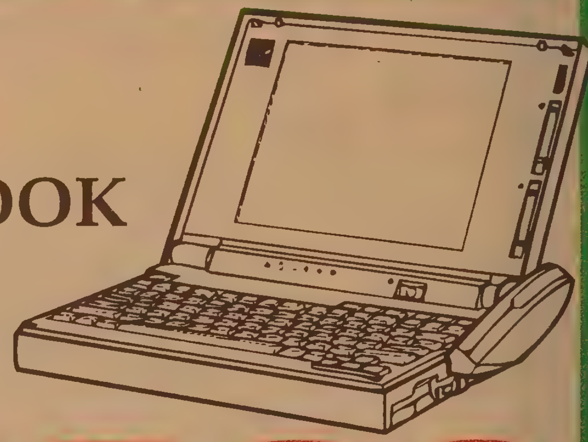
intel inside

IBM Business Partner
Authorized
Personal
Computer
Dealer

MODEL 2155-S54
#1735831

$1698

IBM® PS/1®
Expert 2141-S82
386SL-25MHz 80MB NOTEBOOK



Intel 386SL 25MHz CPU ▪ 80MB Hard Drive
2MB RAM ▪ 3.5" 1.44MB Floppy Drive
VGA Output ▪Serial/Parallel ▪ Trackball
MS DOS **IBM Quality & Reliability:** The PS/1 Expert is built to IBM's exacting standards forquality & reliability.
Support and Service: The exclusive online PS/1 Club™ answers your computing questions, 20 hours a day, 365 days a year.
#1709065

IBM Business Partner
Authorized
Personal
Computer
Dealer

$1599

WHILE SUPPLIES LAST!!!

Fry's ELECTRONICS

Home of Fast, Friendly, Courteous Service

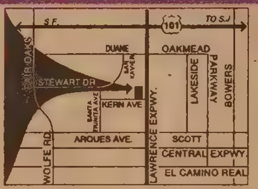
HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA
MasterCard
VISA AND MASTERCARD

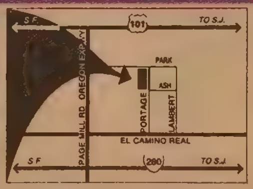
Prices good through June 21, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

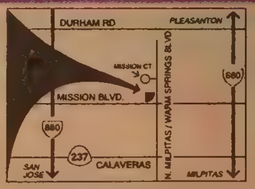
®IBM and Personal System/1 are registered trademarks of International Business Machines Corporation.


S.F.
101
TO S.J.
FAIR OAKS
DUANE
SAN JUAN
OAKMEAD
STEWART DR
SANTA TRINITA AVE
KERN AVE
LAKESIDE
PARKWAY
BOWERS
LAWRENCE EXPWY.
WOLFE RD.
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
OREGON EXPWY
PAGE MILL RD
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S F
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000


DURHAM RD
PLEASANTON
MISSION CT
680
MISSION BLVD.
N. MILPITAS / WARM SPRINGS BLVD
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)

CORPORATE P.O. FAX #
(408)735-6800
(415) 496-6060
(510) 770-3700

Panasonic
PRINTER SALE!

An Authorized **PANASONIC** Reseller & Service Center

KX-P2123
24-PIN NARROW CARRIAGE PRINTER

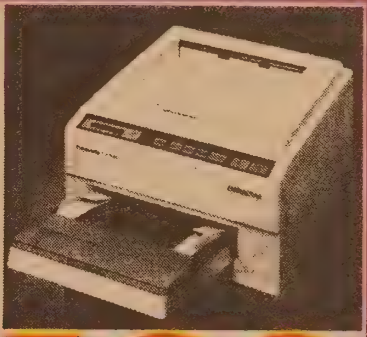
6 LQ, 1 SLQ and 3 Draft Fonts Top, Bottom, Rear Paper Feed 240 CPS 360 DPI
Emulations: Epson LQ-860, IBM Proprinter X24E
Color Option

ADOBE TYPEMANAGER BUNDLE IN BOX

$238

#1668153

KX-P4410
LASER PRINTER



5PPM 300 DPI
512K RAM Expandable to 4.5MB
Bitmap Fonts
200 Sheet Paper
Multi-purpose
Cassette

$599

#1659047

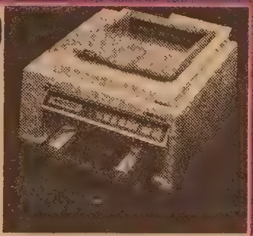
KX-P2124
24 PIN QUIET DOT MATRIX PRINTER

320 CPS Draft • 85 CPS LQ • 8 Fonts
With Color Option • 12 Resident Fonts
360 X 360 Dots Per Inch

$319

#1694170

KX-P4430
LASER PRINTER



5 Pages Per Minute
300 DPI
1MB RAM Expandable to 5MB
PCL5 • Scalable Fonts

$699

#1694181

KX-P2180
QUIET PRINTER TECHNOLOGY

9 Pin • 80 Columns • 192 CPS - 38 CPS NLQ
6 Built In NLQ Fonts • 240x 216 DPI Resolution
Push - Pull Tractor • Color Options

$163

#1658714

COLOR OPTION KIT

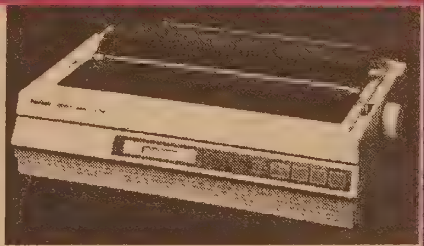
For the 2180, 2123,
2124 Quiet Printers • 1 Ribbon
Motor Kit Included

$59.95

KX-PCK11
#1659014

KX-P2624

The Quiet 24-Pin Wide carriage Printer is Here!



Super Letter Quality Mode • 11 Resident Fonts • 63 CPS in Near Letter Quality mode • 132 Columm • 240 CPS in Draft Mode • Rear, Bottom, Front & Top Feed
Programmable EZ Set Operator Panel
Parallel Interface, Optional Serial

$378

#1607936

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

Limit Rights Reserved
Not Responsible For

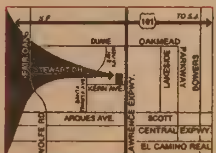
Prices good thru June 21, 1993

VISA
AND
MasterCard
ACCEPTED

VISA

MasterCard

HOURS
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

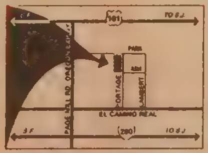


S.F.
101
TO S.J.
DUANE
OAKMEAD
FAIR OAKS
STEWART DR.
SANTA TRINITA AVE
KERN AVE.
LAKESIDE
PARKWAY
BOWERS
LAWRENCE EXPWY.
WOLFE RD.
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770

DURHAM RD.
PLEASANTON
MISSION CT
MISSION BLVD.
N MILPITAS / WARM SPRINGS BLVD
680
880
237
SAN JOSE
CALAVARAS
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700



S.F.
101
TO S.J.
PAGE MILL RD. OREGON EXPWY
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
280

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060

CORPORATE P.O. FAX # (408)735-6800

A SMALL SAMPLE OF THE PANASONIC HOME OFFICE SAVINGS AT FRY'S ELECTRONICS

ANSWERING MACHINES

Panasonic

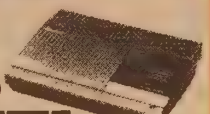
ANSWERING MACHINE

Answering system with Auto-Logic Operation, Tone Remote Control, Digital Display, Message Memo Recording and Remote turn on, Auto-Logic Operation Automatically Rewinds, Plays Messages, Stops at the Last Message and Resets itself at the Touch of One Button.

Model
KX-T1000
#1498194

$\$39^{95}$

Panasonic



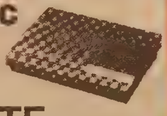
DUAL MICRO CASSETTE ANSWERING SYSTEM

Panasonic's new dual micro cassette answering system offers an LCD Call Counter, marker message, room monitor, auto disconnect, electronic auto disconnect, electronic volume control, audible message alert, and much more for only...

MODEL
KX-T2100
#1740208

$\$69^{95}$

Panasonic



DUAL MICRO CASSETTE ANSWERING SYSTEM WITH VOICE TIME/DAY STAMP

Panasonic's new dual micro cassette answering system offers an LCD Call Counter, marker message, room monitor, auto disconnect, electronic auto disconnect, electronic volume control, audible message alert, and much more for only...

MODEL
KX-T2300
#1740219

$\$89^{95}$

SPEAKER PHONES

Panasonic

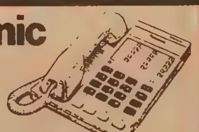
SPEAKERPHONE

For the office or home, this phone has all the features you need. It has a speaker phone, 28 station automatic dialer, automatic redial and much more.

MODEL
KX-T2315
#1530100

$\$39^{95}$

Panasonic



SPEAKER PHONE

This outstanding value from Panasonic offers one-touch dialing for up to 28 16-digit telephone numbers, auto redial for up to 15 times, redial memory transfer, and a save button for temporary redial memory storage for only...

MODEL
KX-T2355
#1287186

$\$49^{95}$

Panasonic

LCD READOUT SPEAKERPHONE

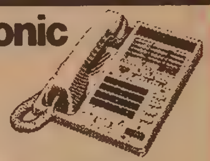
This outstanding value from Panasonic offers a 12-digit LCD readout for phone number, clock, call timer(minutes & seconds), and operating modes. Perfect for the home or office at only...

MODEL
KX-T2365
#163665

$\$69^{95}$

MULTI-LINE BUSINESS PHONES

Panasonic



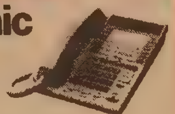
TWO LINE PHONE

A two line phone doesn't have to cost a fortune. Panasonic has the low cost answer for you. This unit has a convenient auto dialer, conference calling and much more!

MODEL
KX-T3110
#1505313

$\$49^{95}$

Panasonic



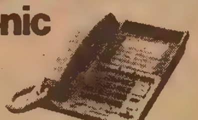
2-LINE SPEAKERPHONE W/ LCD DISPLAY

From Panasonic comes this fully featured 2-line speakerphone with LCD display, 3-way conference call, volume control for speaker and handset, 24-station one-touch dialer, auto redial, flash, separate ringer tone, line status indicator, memo dial, and save redial, all for only...

MODEL
KX-T3175
#1745122

$\$89^{95}$

Panasonic



3-LINE SPEAKERPHONE WITH LCD DISPLAY

From Panasonic comes this fully featured 3-line speakerphone with LCD display, 3-way conference call, volume control for speaker and handset, 48-station one-touch dialer, auto redial, flash, separate ringer tone, line status indicator, memo dial, and save redial, all for only...

MODEL
KX-T3185
#1768039

$\$159^{95}$

10 CHANNEL CORDLESS PHONES

Panasonic

10 CHANNEL CORDLESS PHONE

Most cordless phones have a very short battery life, but this one can last up to 7 days in the standby mode! Add a flexible antenna, 10 number memory, 10 channels, paging and you have an excellent value at...

MODEL
KX-T 3710
#1694996

$\$69^{95}$

Panasonic

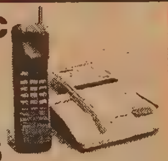
10 CHANNEL CORDLESS SPEAKERPHONE WITH DUAL KEYPAD

If you want the phone that has it all, come and see one today! The hot new KX-T3910 from Panasonic is like having two phones in one! You can talk and dial from the base or talk back and forth through the intercom. And it even has a 16 number Automatic dialer!

MODEL
KX-T3910
#1511415

$\$129^{95}$

Panasonic



10 CHANNEL CORDLESS SPEAKERPHONE WITH DUAL MICROCASSETTE

This new top of the line cordless dual microcassete answering system with sound charger technology delivers sound so clear, you will hardly believe your ears! Some of the features included are, 2 way paging, intercom, auto security system, message alert, 2-way and memo recording just to name a few. Now only...

MODEL
KX-T4400
#1735370

$\$199^{95}$

FAX MACHINES

Panasonic

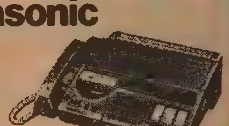
FAX MACHINE WITH ANSWERING MACHINE AND ANTI-CURL

This fully featured Fax from Panasonic comes equipped with an auto-logic answering system and anti-curl, as well as copier capabilities. It's the perfect secretary for your home or business!

MODEL
KX-F150
#1770001

$\$399$

Panasonic



FAX MACHINE WITH PAPER CUTTER AND ANTI-CURL

This fully featured Fax from Panasonic comes equipped with an auto-logic answering system and auto paper cutter, as well as copier capabilities. It's the perfect secretary for your home or business!

MODEL
KX-F250
#1770023

$\$469$

Panasonic

PLAIN PAPER LASER FACSIMILE

It's an answering machine, integrated telephone, plain paper laser facsimile with copier capabilities all rolled into one! The 250 page paper cassette, along with the 20 page document feeder makes this the perfect facsimile for businesses that need high volume capability along with clear fax resolution.

MODEL
KX-F5000
#1688506

$\$1597$

Home of Fast, Friendly, Courteous Service

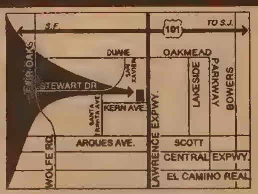
Fry's ELECTRONICS

Prices good through June 21, 1993

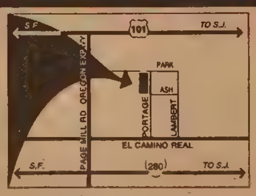
Limit Rights Reserved
Not Responsible For
Typographical Errors

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

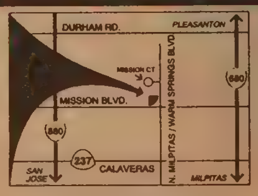
VISA AND
MASTERCARD



SUNNYVALE
1177 Kern Ave.
(408) 733-1770



PALO ALTO
340 Portage Ave.
(415) 496-6000



FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)

CORPORATE P.O. FAX # (408)735-6800 (415) 496-6060 (510) 770-3700

Parana®
SUPPLIES CORPORATION

Parana Printer Ribbons Make a Great Impression.™

FOR EPSON

202S Black **$3.99**
For Models FX1050, MX100 #1595273

204S Black **$4.99**
For Models LQ1050, LQ1010, LQ1000 #1595675

205S Black **$4.99**
For Model LQ2550 #1611874

207S **$14.95**
For Models DFX-5000/8000 #1647341

208S Black **$4.99**
For Models EX800, EX1000 #1611885

FOR CITIZEN

131S **$4.95**
For Models 120, 180D, GSX-140, GSX-200 BLACK #1595251

132S COLOR **$14.95**
For Model GSX-140 FOUR COLOR RIBBON #1662733

133S **$7.95**
For Model GSX-145 BLACK #1753204

134S COLOR **$15.95**
For Model GSX-145 #1753215

FOR IBM

251S Black **$3.99**
For Proprinter #1595686

252S Black **$4.99**
For Proprinter XL #1611944

255S Black **$6.99**
For IBM 2380/2390/2391/2381 #1723375

FOR PANASONIC

381S Black **$5.99**
For Models 1000, 1080, 1081, 1082, 1083, 1090, 1091, 1092, 1180, 1191 1592, 1593i #1595712

382S Black **$5.99**
For Models 1123, 1124, 1124i #1595723

383S **$5.95**
For Models 1624, 1695, #1647352

384S **$5.95**
For Model KX-P1524 #1647374

385S **$6.95**
For Model KX-P2180 BLACK #1753226

386S **$12.95**
For Model KX-P2180 COLOR #1753237

FOR IMAGEWRITER II

101S **$2.99**
BLACK #1595240

102S **$7.99**
COLOR #1662722

FOR TOSHIBA

425S Black **$4.49**
For Models P321, 341, 351SX #1611852

426S Black **$5.95**
For Models P321SL, P341SL #1611863

FOR NEC

301S Black **$6.95**
For Models P2200, P2200XE #1611830

302S Black **$6.25**
For Models P5200, 5300 #1611841

FOR STAR

401S Black **$4.49**
For Models NX1000 Series #1595734

402S Black **$7.49**
For Model NX1020 #1662777

403 S COLOR **$11.95**
For Model NX1020 #1662788

FOR SEIKOSHA

390S **$7.99**
Black ribbon for models Seikosha SL-90/SL-92, SL-2400/PRIENTA 2400 #1723423

391S **$5.99**
Black ribbon for models Seikosha SP-2000, SL-80, SP-1600, PRIENTA 900 #1723456

Combined With Fry's Low Prices, Parana Ribbons Are A Great Value!

Fry's ELECTRONICS

Home of Fast, Friendly, Courteous Service

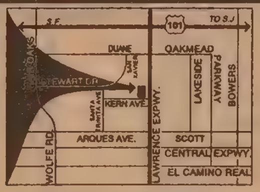
Prices good through June 21, 1993

Limit Rights Reserved Not Responsible For Typogrphical Errors

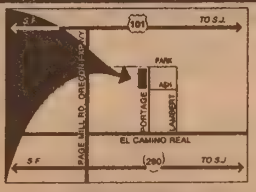
STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA MasterCard
VISA AND MASTERCARD ACCEPTED

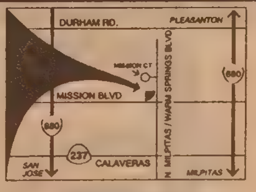
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S.J
DUANE
OAKMEAD
STEWART DR
KERN AVE.
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE.
SCOTT
CENTRAL EXPWY
EL CAMINO REAL
WOLFE RD
LAWRENCE EXPWY.

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
PAGE MILL RD. OREGON EXPWY
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S F
280
TO S.J

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT
680
MISSION BLVD
MILPITAS / WARM SPRINGS BLVD
680
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(415) 770-3700

E.S.P.

EXTENDED SERVICE PLAN

Extend the Manufacturer's Warranty Through Fry's!

ON-SITE!*

Fry's now offers ON-SITE extended service plans to support the extended range of computing environments in today's workplace. Give our "Fry's on Wheels" support team the opportunity to solve your hardware problems. A $999 system configuration would cost only $225/year on a 2 year On-Site w/ Loaner Full-Service Plan.

A LOANER FOR THE OWNER!

Fry's understands the inconvenience of downtime due to manufacturer repair delays. In keeping with our total commitment to service and customer satisfaction we offer our ESP customers loaner equipment for any repairs which exceed a 24 hour turn around and are covered under Fry's Depot or On-Site Service Plan.

ALL AT NO EXTRA CHARGE!

Computers never sleep and neither do our service departments.

7 DAYS A WEEK!

Fry's Service departments are open weekdays and weekends during regular store hours to provide you with complete Depot, On-Site and telephone technical support.

DEPOT:

AT ANY OF FRY'S 3 SUPERSTORES

A) No deductible or hidden charges.
B) Renewable for the life of the product.
C) No limit to the number of repairs
D) Equipment repaired within 24 hours or loaner equipment will be provided.

Only $75/year on a 2 year Loaner Plan for a system costing $999

FACTORY CERTIFIED SERVICE TECHNICIANS

24 HOUR *QUICK* RESPONSE TIME!

HEWLETT PACKARD
Authorized Dealer
A 50 YEAR TRADITION OF QUALITY.
HP DELIVERS PC PRODUCTS YOU CAN DEPEND ON.

Panasonic
Office Automation OA

NOVELL
NETWARE NETWORK INSTALLATION & SERVICE

MOST CLONE COMPUTERS

IBM
Business Partner
Authorized Personal Computer Dealer

Printers
LEXMARK
Authorized Dealer

EPSON
Apple
Authorized Reseller

IF YOU DIDN'T BUY IT FROM FRY'S...

See us anyway!

We offer extended service protection on systems and printers purchased elsewhere. Bring your equipment into one of our three service departments and let Fry's courteous service technicians assist you in determining your computer service needs.*

* Subject to minimal evaluation & diagnostics fee to determine qualification for coverage.

Home of Fast, Friendly, Courteous Service

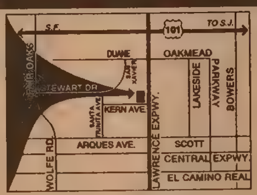
Fry's ELECTRONICS

Limit Rights Reserved
Not Responsible For
Typographical Errors

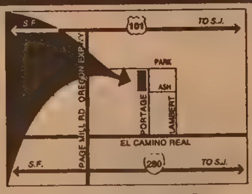
HOLIDAY HOURS:
MON-FRI
8AM-10PM
SATURDAY
9AM-9PM
SUNDAY
9AM-8PM

VISA AND MASTERCARD

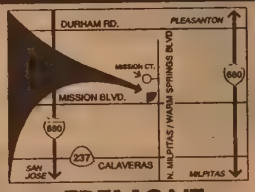
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S.J.
DUANE
OAKMEAD
SAN XAVIER
STEWART DR
KERN AVE.
SANTA TRINITA AVE
LAWRENCE EXPWY.
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL
WOLFE RD.

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
PAGE MILL RD
OREGON EXPWY
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S.F.
280
TO S.J.

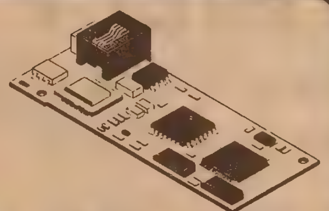
PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT.
N. MILPITAS / WARM SPRINGS BLVD
680
MISSION BLVD.
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

Supra Corporation® **Supra Corporation®** **Supra Corporation®**

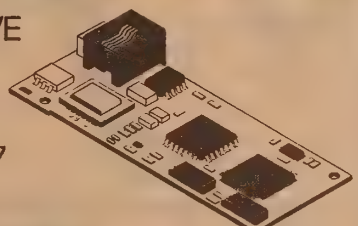
SupraFAX Modem™ INTERNAL



14,400 SEND/RECEIVE FAX WINDOW
AND MODEM MNP 2-5
HARDWARE V.42BIS
INTERNAL 50-14FX WINDOW #1746031

$199

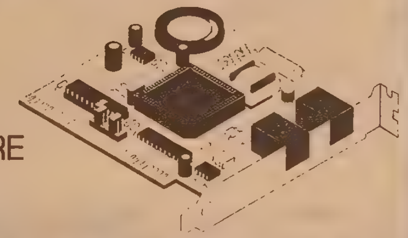
SupraFAX Modem™ INTERNAL



14,400 SEND/RECEIVE
FAX MODEM
MNP 2-5 HARDWARE
V.42BIS
INTERNAL #1735727

$199

SupraFAX Modem™ 24/96 INTERNAL



2400 MODEM
9600 SEND 4800
RECEIVE FAX
MNP 2-7 SOFTWARE
V.42 BIS
#1735716

$65.99

SupraFAX Modem™ INTERNAL

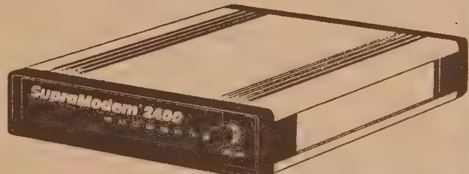
14,400 BPS FAX MODEM
WITH V.42BIS MNP 2-5
50-14FX-0 #1705625

SupraFAXModem

$249

SupraModem® 2400

EXTERNAL MODEM
2400 BAUD FOR DOS OR
MACINTOSH
50-2400-0
#1751752


SupraModem 2400

$65.99

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

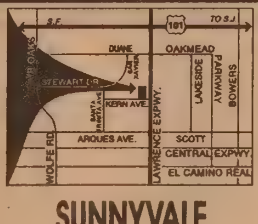
Prices good through June 21, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA MasterCard
VISA AND MASTERCARD

CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S.J.
OAKMEAD
DUANE
SAN XAVIER
STEWART DR.
KERN AVE.
SANTA TRINITA AVE
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL
WOLFE RD.
LAWRENCE EXPWY.

SUNNYVALE
1177 Kern Ave.
(408) 733-1770

S.F.
101
TO S.J.
PARK
ASH
PORTAGE
LAMBERT
PAGE MILL RD. OREGON EXPWY
EL CAMINO REAL
S.F.
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060

DURHAM RD.
PLEASANTON
MISSION CT
MISSION BLVD.
680
880
237
CALAVERAS
SAN JOSE
N. MILPITAS / WARM SPRINGS BLVD
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

THE POWER OF A COMPUTER IN THE PALM OF YOUR HAND!

HEWLETT PACKARD
Authorized Dealer

1MB PALMTOP COMPUTER

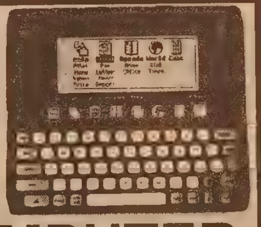
w/80 x 25 FULL SCREEN MS-DOS 5.0

It's here ! The smallest, lightest HP PC ever comes equipped with complete organizer software to manage your time, tasks and data, plus you can retrieve information instantly with a full range of built- in personal productivity tools. The pull-down menus and dialogue boxes make it simple to master the familiar commands, and the high-resolution display with zoom option is easy to read ! With lotus 1-2-3 built-in you will have full spreadsheet capability, including graphics and macros. Also includes CC:Mail built-in. Now only...

$719

MODEL
HP-100LX
#1788150

PSION SERIES 3



POCKET SIZED 256KB COMPUTER

W/ BUILT-IN SPREADSHEETS

Psion has redefined the state of the art in hand held computers with the new Series 3. It may be small, but this pocket-sized programmable computer comes equipped with features found in desktop machines plus powerful built-in software, including a full specification word processor and outliner that's compatible with Microsoft word. When using the Series 3 you will quickly learn from the system of graphic displays and option list how easy the Series 3 is to use. And with Psion's unique Multitasking Operating System, as many of the facilities as you want can be used at the same time! Other features include an automatic phone dialer, world information, a time and personal management file, powerful graphics programming language (OPL/w) which will enable you to write your own applications and two expansion ports for plug in SSD devices for unlimited memory and software.

$378

MODEL
SERIES 3
#1763861

CASIO

256K EXECUTIVE B.O.S.S. BUSINESS ORGANIZER

w/BUILT-IN SPREADSHEET

Casio's latest business organizer comes equipped with a business card management function, schedule function, two month calendar display, world time, a daily alarm , schedule alarm, telephone directory, memo functions, reminder function, to do list, cut & paste function, and spreadsheet function (compatible with Lotus 1-2-3 data) all displayed on a wide 40 character by 10 line screen. An Invaluable investment at only...

$278

MODEL
SFR20
#1728473

SHARP

256K PERSONAL ORGANIZER

w/TOUCH SCREEN TECHNOLOGY

This Sharp Wizard lets you leave your portable computer at home but puts the power of that computer in your pocket! Here's a small sampling of the innovative features. Touch screen technology which allows you to write or draw on the screen using the Wizard pen, filer which organizes related data into folders that can be transferred to another touch screen Wizard Via infared, and it's true word processer with a large screen display and a keyboard thats 75% the size of a standard PC keyboard. The possibilities are endless at only...

$100 OFF ORIGINAL PRICE

$399.95

MODEL
OZ-9600
#1741782

Fry's ELECTRONICS

Home of Fast, Friendly , Courteous Service

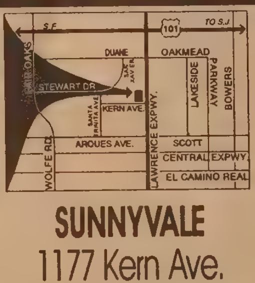
Prices good through June 21, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

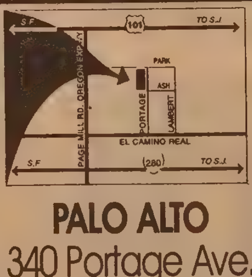
HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD

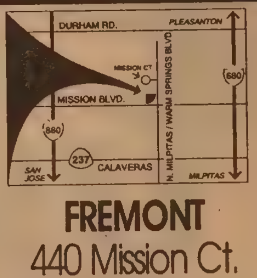
CORPORATE P.O. FAX # (408)735-6800


S.F
101
TO S.J
FAIR OAKS
DUANE
SAN XAVIER
OAKMEAD
STEWART DR
SANTA ERNITA AVE
KERN AVE.
LAKESIDE
PARKWAY
BOWERS
LAWRENCE EXPWY.
WOLFE RD.
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F
101
TO S.J
PAGE MILL RD. OREGON EXPWY
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S.F
280
TO S.J

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT
680
MISSION BLVD.
N. MILPITAS / WARM SPRINGS BLVD
880
SAN JOSE
237
CALAVERAS
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

SONY. THE ONE AND ONLY HOME OFFICE CHOICE

ANSWERING MACHINES

SONY.

TELEPHONE ANSWERING MACHINE

This Sony answering machine is the simplest to operate. Just look on the playback button and it tells you how many messages you have, press to hear them.

$\$67^{95}$

MODEL
TAM-30
#1481910

SONY.

DIGITAL ANSWERING MACHINE

This Digital Answering Machine from Sony has a LED message counter, Time/Date stamp, remote message retrieval & much more for only...

$\$97^{95}$

MODEL
TAM-50
#1481921

SONY.

DIGITAL TELEPHONE ANSWERING SYSTEM

This sophisticated multi-functional digital telephone answering system is perfect for the home or office! With features like dual outgoing messages, LCD menu display, digital message storage, direct access message retrieval, message transfer, and built-in speakerphone.
An excellent value at...

$\$177^{95}$

MODEL
IT-A4000
#1629750

BUSINESS PHONES

SONY.

SPEAKER PHONE w/16# MEMORY

From the leader in cordless phone technology comes a new line of feature phones. This unit has a crystal clear speakerphone, 16 number memory and more!

MODEL
IT-D10
#1699142

$\$47^{95}$

SONY.

SPEAKERPHONE w/LCD DISPLAY

Have you ever made a mental note to call someone, and then forgot? Well, you won't have that problem anymore because this speakerphone comes equipped with an automatic call timer/reminder alarm! Now only...

$\$77^{95}$

MODEL
IT-D150
#1516889

SONY.

2-LINE FEATURE PHONE w/ SPEAKERPHONE

Phones with 2-line operation are relatively common, but this phone offers a distinctive ring for each line! The LCD indicator will tell you the number dialed and the time. Now only..

$\$97^{95}$

MODEL
IT-D250
#1516904

PHONE/ANSWERING MACHINE COMBO

SONY.

TELEPHONE AND ANSWERING MACHINE

Now you can have the marvelous Sony quality telephone and answering machine with digital outgoing message for a mere . . .

$\$97^{95}$

MODEL
IT-A205
#1529759

SONY.

SPEAKERPHONE ANSWERING MACHINE

This stylish speakerphone answering system comes equipped with a digital message counter, auto interrupt, two-way conversation recording, 5-number one-touch dialing, and, 15-number speed dialing, an excellent value at...

$\$127^{95}$

MODEL
IT-A305
#1529760

SONY.

SPEAKERPHONE ANSWERING MACHINE

This stylish speakerphone answering system comes equipped with a digital message counter, auto interrupt, two-way conversation recording, 5-number one-touch dialing, and, 15-number speed dialing and voice time/day stamp, an excellent value at...

$\$147^{95}$

IT-A505
#1529771

CORDLESS PHONES

SONY.

CORDLESS TELEPHONE WITH PAGING

This hot Sony cordless phone has 7 day standby, Paging and out-of-range warning system. This handy unit can sit on a table or hang on the wall! All this for only...

$\$67^{95}$

MODEL
SPP-57
#1720707

SONY.

10 CHANNEL CORDLESS PHONE w/LIGHTED KEYPAD

This 10 channel cordless phone offers out of range alert, extended 7-day battery standby power, 10 number speed dialing, and many other features for only...

$\$97^{95}$

MODEL
SPP-77
#1766990

SONY.

10 CHANNEL CORDLESS SPEAKERPHONE & DIAL-OUT KEYPAD

From the newest generation of Sony cordless phones comes this model which offers base speakerphone and dial-out keypad giving you the option of answering or making calls from the base or handset, 2-way paging /intercom, 10 number memory, dual rechargeable battery pack, handset volume control, and much more for only...

$\$177^{95}$

MODEL
SPP-180
#1720671

CORDLESS/ANSWERING MACHINE COMBO

SONY.

10 CHANNEL CORDLESS PHONE w/ ANSWERING MACHINE

This innovative product from Sony actually combines a ten channel cordless phone with a full featured answering machine in one sleek package. Features include 256 security codes, 7 day stand-by, compander noise reduction and remote message retrieve.

$\$147^{95}$

MODEL
SPP-A20
#1714074

SONY.

10 CHANNEL CORDLESS PHONE w/ ANSWERING MACHINE AND VOICE TIME DAY STAMP

This innovative product from Sony actually combines a ten channel cordless phone with a full featured answering machine in one sleek package. Features include 256 security codes, 7 day stand-by, compander noise reduction and remote message retrieval.

$\$177^{95}$

MODEL
SPP-A40
#1720578

SONY.

10 CHANNEL CORDLESS SPEAKER PHONE w/ ANSWERING MACHINE AND VOICE TIME DAY STAMP

This innovative product from Sony actually combines a ten channel cordless phone with a full featured answering machine in one sleek package. Features include 256 security codes, 7 day stand-by, compander noise reduction and remote message retrieval. As an added bonus, the base unit is a speakerphone with adjustable volume

$\$197^{95}$

MODEL
SPP-A60
#1720590

Home of Fast, Friendly, Courteous Service

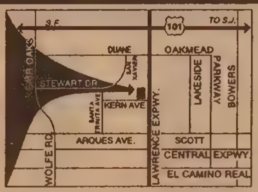
Fry's ELECTRONICS

Prices good through June 21, 1993

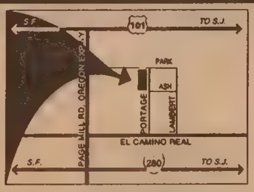
Limit Rights Reserved
Not Responsible For
Typographical Errors

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

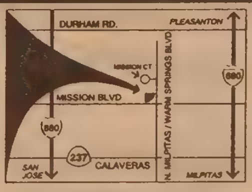
VISA AND MASTERCARD



SUNNYVALE
1177 Kern Ave.
(408) 733-1770



PALO ALTO
340 Portage Ave.
(415) 496-6000



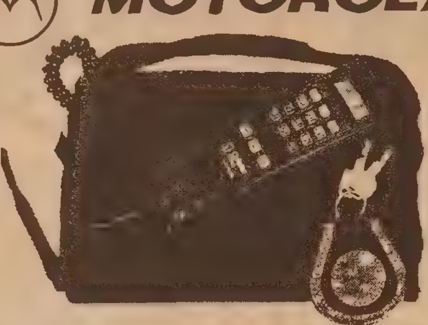
FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)

CORPORATE P.O. FAX # (408)735-6800 (415) 496-6060 (510) 770-3700

Authorized
GTE Mobilnet
Sales Representatives
Mr Rescue™ service
Ask for more details

GET MOBILIZED
AT FRY'S ELECTRONICS

MOTOROLA



CELLULAR TOTE PHONE

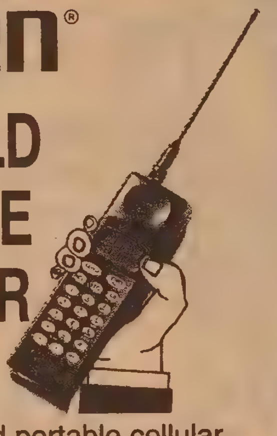
This new addition to the Motorola family of cellular phones offer 30 number memory and 3 full watts of power for only...

Service Activation Not Required
No Sales To Dealers Or Resellers
Limit One Per Family

$189

Model
S3230
#1751866

uniden®



HANDHELD PORTABLE CELLULAR PHONE

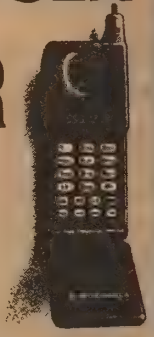
Our latest handheld portable cellular phone is priced to go and includes dual NAM, 30 number memory, auto redial, 3 call timers, one touch redial, call restriction, signal level meter, low battery warning signals, plus illuminated LCD, a battery and AC adapter. All for the unbelieveably low price of only...

Service Activation Not Required
No Sales To Dealers Or Resellers
Limit One Per Family

$199

Model
CP6000
#1787539

MOTOROLA



CELLULAR FLIP PHONE

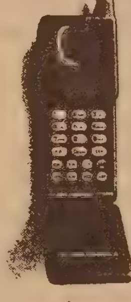
This premium value cellular phone from Motorola comes equipped with 30 number memory, LED display, call timer, signal strength meter, a battery with 75 minute total talk time, an overnight charger and a caring case for only....

Service Activation Not Required
No Sales To Dealers Or Resellers
Limit One Per Family

$349

Model
DPC-550
#1635999

MOTOROLA



ALPHA MICRO-TAC CELLULAR PHONE

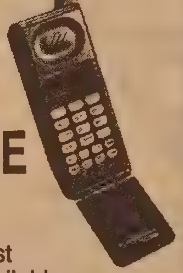
If it's small and lightweight that your looking for, this is the cellular phone for you! With its 101 alpha numeric memory, a desktop charger, and standard battery. This technologicaly advanced cellular phone can be yours only...

Service Activation
Not Required
No Sales To Dealers
Or Resellers
Limit One Per Family

$439

Model
DPC-950 BASE
#1744545

MOTOROLA



MICRO TAC LITE CELLULAR PHONE

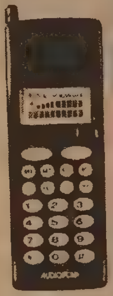
Weighing in at 7.7 ounces and measuring 11.6 cubic inches, this is one of the lightest and most advanced cellular telephones available. With 100 alpha numeric memory, are tractable antenna, standard battery, and desktop charger, you can receive state of the art performance and design for only...

Service Activation
Not Required
No Sales To Dealers
Or Resellers
Limit One Per Family

$619

Model
MICROTAC
LITE BASE
#1750739

AUDIOVOX®



MINIVOX LITE 6.2oz. HAND-HELD PORTABLE CELLULAR PHONE

Audiovox has utilized the latest in micro electronics to deliver the most advanced hand-held portable in one very compact package. The Minivox Lite features include a Nickel metal hydride battery pack, travel battery charger, large send and end keys, dual retractable antenna, alpha search, battery level indicator, 101 alpha numeric locations, 2 one touch speed dialing, five function call timer, and much more for just...

Service Activation
Not Required
No Sales To Dealers
Or Resellers
Limit One Per Family

$649

Model
PR-350
#1794997

Home of Fast, Friendly, Courteous Service

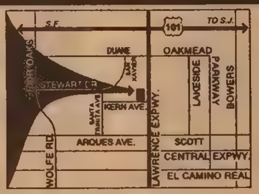
Fry's ELECTRONICS

Prices good through June 21, 1993

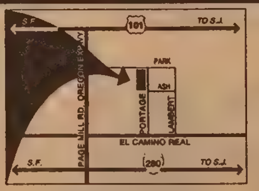
Limit Rights Reserved
Not Responsible For
Typographical Errors

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

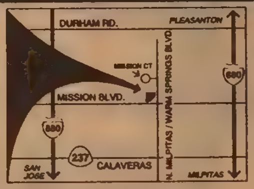
VISA AND MASTERCARD


S.F.
101
TO S.J.
FAIR OAKS
DUANE
SAN XAVIER
OAKMEAD
STEWART DR
SANTA TRINITA AVE
KERN AVE.
LAKESIDE
PARKWAY
BOWERS
WOLFE RD.
ARQUES AVE.
LAWRENCE EXPWY.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
PAGE MILL RD. OREGON EXPWY
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S.F.
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000


DURHAM RD.
PLEASANTON
MISSION CT
680
MISSION BLVD.
N. MILPITAS / WARM SPRINGS BLVD
880
237
CALAVERAS
SAN JOSE
MILPITAS

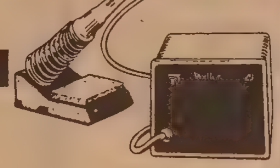
FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)

CORPORATE P.O. FAX # (408)735-6800 (415) 496-6060 (510) 770-3700

YOUR BEST BUYS ARE ALWAYS AT FRY'S ELECTRONICS!

Weller®

SOLDERING STATION



Compact, remote operator comfort and convenience. Self feeding water reservoir. Exclusive closed loop transformer. Pencil stand connects to right or left station.

SPECIAL
Reg. Price $119.99

$99.95

CG-WTCPT
#1723113

DYNAPULSE 200M A PROFESSIONAL BLOOD PRESSURE MEASUREMENT SYSTEM

Use your PC to measure, trend and monitor your blood pressure.
DOS and windows compatible.
#1755848

$129.99

ALPEC

LASER POINTER

Grab and retain your audiences attention by sending a bright red point of laser light. Alpec's Infiniter Laser Pointer is easy to use. To activate, depress the pen clip; the beam of light will focus up to 100 yards. This compact, pen-sized laser pointer fits comfortably in your hand or pocket.
Ideal for executives, realtors, contractors, professors, and doctors. Includes a sturdy presentation case, detailed instructions, and a one year warranty. It operates on 2 AAA batteries (included)

MODEL 4000
#1770425

$99.99

10 BASE-2 TRANSCEIVER

Simply connects to the ethernet coax cable through a BNC connector and to workstation

$79.95

PB2-1000 #1757426

EPD TRANSFORMERS

Step-Up/Step-Down
Foreign Voltage Transformer.
Constant Duty Transformers/Reversible.
110VAC/220VAC or 220VAC/110VAC. Ideal for travel or for using overseas products here. Available in 50W, 100W, 200W, 300W, 500W, 1000W

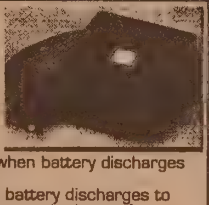
$18.99

28-UDX50 watt
#1662445

140 WATT CONTINUOUS INVERTER

Focus Industries

12vdc to 110vac

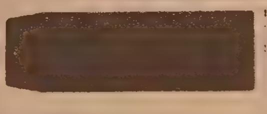


Features
- High Efficiency- maximizes battery life
- Extremely Compact- highly portable
- Low Battery Alarm- audible, activated when battery discharges to 10.6 volts
- Low Battery Shutdown- activated when battery discharges to 10 volts (this prevents permanent damage to the battery)
- Electronic Circuit Protection- prevents potential damage from overloads and inadequate ventilation
- High Surge Current Capability- starts difficult loads such as lamps, motors and other inductive loads
- Operates most AC powered electronic equipment

PC140
#1732698

$79.99

SLOTTED PHILLIPS SEVEN PIECE ELECTRONIC TOOL SET



Wiha

$19.99

MODEL 26190
#1738960

Wescorp
DIV. DAL INDUSTRIES, INC.

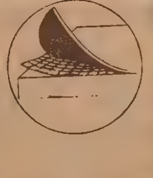
ADJUSTABLE WRIST STRAP AND CLIP

WITH
6 FT. CORD
W-07924-2

$9.99

#1781588

3M STATIC DISSIPATIVE THREE LAYER FLOOR MAT



4' x 6' mat with ground cord and accessories.
8203 #1752524

$189.99

KLEAR SCREEN

klear screen

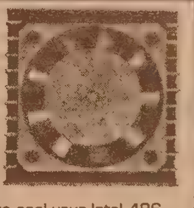
First product designed to clean delicate LCD displays.
- Non-toxic
- Alcohol free
- Ammonia free

#1743500

$7.99

PCUBID
Computer Technology, Incorporated

486 CPU KOOLER



A high quality Heatsink and fan combined to cool your Intel 486 CPU. Many inferior versions are out there, but don't be fooled. Come see the PCubid version and you will see why this is the choice of engineers.
Easy to attach with thermal adhesive (supplied)

486-CPU KOOLER
#1722547

$39.95

Fry's ELECTRONICS

Home of Fast, Friendly, Courteous Service

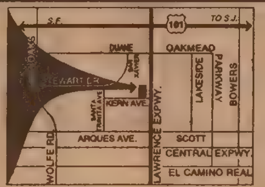
Prices good through June 21, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

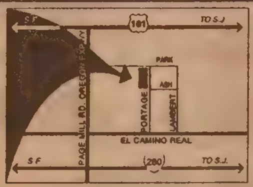
VISA AND MASTERCARD

CORPORATE P.O. FAX #



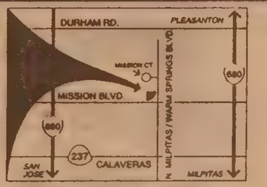
S.F.
101
TO S.J.
OAKS
DUANE
STEWART DR.
SAN XAVIER
SANTA FRANCISCA WAY
KERN AVE.
OAKMEAD
LAKESIDE
PARKWAY
BOWERS
LAWRENCE EXPWY.
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL
WOLFE RD.

SUNNYVALE
1177 Kern Ave.
(408) 733-1770
(408)735-6800



S.F.
101
TO S.J.
OREGON EXPWY
PAGE MILL RD.
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S.F.
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060



DURHAM RD.
PLEASANTON
MISSION CT
680
MISSION BLVD
N. MILPITAS / WARM SPRINGS BLVD
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

FRY'S ELECTRONICS IS YOUR TEST AND MEASUREMENT HEADQUARTERS

PLUS WE STOCK: TEST ACCESSORIES, METER CASES, PROBES, CRYSTALS, OSCILLATORS, RESISTORS, CAPS, EPROMS, PALS, PROGRAMMERS, UV ERASERS, SOLDERING EQUIPMENT, TTL LOGIC, DISCRETES, ELECTRONIC KITS, DATA BOOKS, TECHNICAL BOOKS PLUS MUCH MORE...

NEW FRANCHISE

HITACHI

100MHz LOGIC ANALYZER

32 Data Channels • 5ns Glitch Capture
Multi-Level Triggering • 8K Memory/Channel
The VC-3120 Logic Analyzer provides 25MHz analysis on up to 32 channels. With Soft-Key menus & on-line instructions. This logic analyzer is easy-to-use yet powerful enough for advanced digital design & microprocessor system debugging

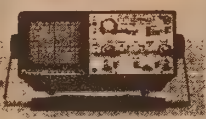
$1995

V-3120
#1746352.

NEW FRANCHISE

HITACHI

20Mhz DIGITAL STORAGE OSCILLOSCOPE



Waveform observation has become an essential part of vitually every phase of a product's life. To solve the problems associated with such waveform analysis, Hitachi has provided an enhanced real time storage Oscilliscope series. 20ms/s sampling • 20Mhz Real time repetative signal storage bandwidth • Cursors Plus Much more

$1895

V-6023
#1746293

NEW FRANCHISE

HITACHI

20Mhz OSCILLOSCOPE

This lightweight, slim-line scope has become the standard of high performance. Hitachi scopes have have earned acclaim from field-serving and maintenance personnel worldwide. 2 Channel, Single Time Base, 3 Year Warranty

$419

Model V-212
#1746237

AMERICAN RELIANCE INC.

PROGRAMMABLE DC POWER SUPPLY

Output voltage & current programming
Output voltage & current readback
Remote sense
Programmable over voltage & current settings
Software calibration
Reverse polarity protection
Output enable/disable
GPIB interface
3 Year warranty

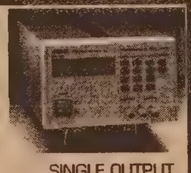
SINGLE OUTPUT
LO: 32V/3A
HI:16V/6A

$895

PPS-1326
#1682393

AMERICAN RELIANCE INC.

PROGRAMMABLE DC POWER SUPPLY



The programmable DC Power Supply Series from ARI adds a new dimension for flexible testing of bench top environments. Although primarily used in ATE systems, the PPS' main beneficiaries are the lab and service people. With a PPS, one may effectively implement, monitor and alter all interface, the unit is controlled via a computer, thus reducing system set-up time and increasing productivity.

SINGLE OUTPUT
32V/2A

$445.99

PPS-1322
#1682382

Protek

DC POWER SUPPLY

A high quality DC poower supply featuring a unique ower savings design for cooler and more efficient operation. Two separate LED displays, green readout foer current, gives positive set-up values. Continuously variable with LED indicators signaling either constant voltage or constant current operational mode. Goodline, load regulation plus low ripple and noise makes this a fine compliment to any test bench.

DC OUTPUT
30V @ 3A

$249

3003
#1693238

FLUKE 87 4 1/2 DIGIT TRUE RMS DIGITAL MULTIMETER

19,999 Count high resolution mode, plus 1ms Peak Min/Max Hold.

- Min/Max/Average recording mode w/Min/Max alert
- Frequency, Duty Cycle, & Cap Measurements
- Back-lit display, touch hold, relative modes
- Protective Holster with Flex stand
- Made in USA
- 3 Year Warranty

$298

#1440238

THE CHIEF ENGINEER ULTIMATE METER

TRUE Rms - LCR - Hz - dBm

12 INSTRUMENTS IN ONE

- DC Volt Meter
- AC Volt Meter
- Ohm Meter
- DC Current
- AC current
- Diode Tester
- Audible Continuity Tester
- Frequency Counter 20MHz
- Capetance Meter
- Inductance Meter
- Logic Probe
- dBm

IOMEGA Ohm Impedence • Relative mode • Data hold
Min/Max Average memory Record • True Rms • Auto sleep
Power off
2 Year warranty

S.M.S.

$249

Model 104 #1776719

UNIVERSAL 3 3/4 DI-LOG DIGITAL MULTIMETER

True RMS, 4000 count display analog bar graph, high resolution mode.
Autoranging • Temp • Capacitance
Frequency • Min/Max Recording
Ruggedized and water resistant.
Five year limited warranty.
DL187T #1763506

$219.95

universal UEI enterprises

AMERICAN RELIANCE INC.

3 3/4 DIGIT DIGITAL MULTIMETER

w/AUTORANGING & 1 YEAR WARRANTY

- True Rms AC
- Auto Data Hold
- Sleep Mode
- Min/Max Memories
- Relative Mode
- 20A Fused
- Frequency Counter
- Capacitance
- Memory Read Function
- 0.3% Basic Acc.

AR-MODEL 37
#1742369

$99.95

FREE BOOT
W/PURCHASE
#1744648

BK PRECISION
MAXTEC INTERNATIONAL CORP.

3.5 DIGITAL TOOL KIT MULTIMETER Model 2704A

DMM,Component tester

- 0.5% DCV accuracy
- DC & AC current to 10A
- Resistance, 0.1 to 20M
- Capacitance to 20uF
- Transistor gain measure(hFE)
- Drop resistant case

$58.99

#1701414

BK PRECISION
MAXTEC INTERNATIONAL CORP.

3.5 DIGITAL TOOL KIT MULTIMETER Model 2703A

- Measures voltage, resistance and current
- 0.5% DCV accuracy
- DC current to 10A • Resistance, 0.1 to 20M
- Diode Test
- Drop resistant case

$38.99

#1701403

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

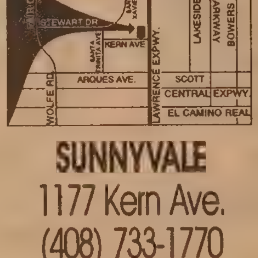
Prices good through June 21, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

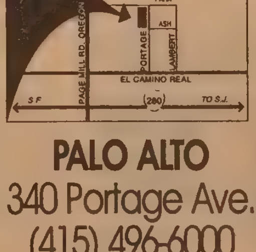
HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND
MASTERCARD

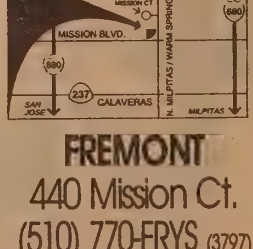
CORPORATE P.O. FAX # (408)735-6800



SUNNYVALE
1177 Kern Ave.
(408) 733-1770
(408)735-6800



PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060



FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

continued from page 154

Tech Nation is broadcast over the Public Radio Satellite System, which makes the show available to nearly six hundred radio stations in the United States. The show has been produced in the studios of KQED in San Francisco since 1987, and became part of ITR's schedule in March of this year.

Interview subjects on *Tech Nation* have included Dr. Linus Pauling, two-time Nobel Prize Winner; Jane Metcalfe and Louis Rossetto, editors/publishers of *Wired* magazine; and Bill Koch on winning the America's Cup. Occasionally the program seems narcissistic, as when Gunn interviewed Carl Malamud, the creator of Internet Talk Radio.

Geek of the Week is a weekly interview with prominent members of the technical community. The show focuses on "sophisticated discussions of issues facing the Internet, networking, and computing." Malamud calls it "the intelligent alternative to today's trade press."

In April, Malamud introduced a cousin to ITR, called Internet Town Hall, which includes audio recordings of speeches. In the first week they released speeches by the Dalai Lama, Bob Dole, and Hershel Shanks on the Dead Sea Scrolls; also the hearings by Congressman Markey on encryption and privacy.

Internet Town Hall programs are good to pick and choose from. Unlike ITR, Town Hall doesn't necessarily focus on computers and technology. One program consisted of Secretary Bruce Babbit presenting Clinton's environmental program to the National Press Club. This sort of archival sound information could prove useful for those of us who don't want to watch C-SPAN all day. If you find you need information from a speech given last month, Town Hall might be the forum to find it.

The programs sound good, considering the medium is in its infancy. After a snazzy musical introduction, Malamud announces (in his best DJ voice), "This is Internet Talk Radio, flame of the Internet."

Sound quality isn't great. Most of one program I heard suffered from speakerphone syndrome: it sounded like the voices were coming from the middle of an empty room. Malamud says the sound quality is improving "as we learn how to use our equipment and adapt it to the realities of this rather strange publishing platform."

Sound quality aside, it's interesting to be able to hear the voices behind the technology. One interview featured Brewster Kahle, the father of WAIS, Inc. and the Wide Area Information Server. Conversation flows neatly from one topic to the next. The interview breaks for an offbeat selection such as *The Incidental Tourist* (restaurant reviews, one of which featured ways to achieve gastronomic heights in the basements of Asian department stores), a book review, or *Name That Acronym*, delivering an "arcane acronym to reverse engineer."

Sun workstation listeners only need the system's "audiotool" program to listen in. Listening on a PC requires SoundBlaster or some other audio source, plus a program that plays ".au" files or converts them to ".wav" files. Macintosh users need a program to convert ".au" to "audio IFF" format. Everyone needs enough disk space and memory to hold 5MB chunks of the program. (Information on finding the free conversion utilities is available from "info@radio.com".)

As compression technology advances, ITR (and its eventual copycats) will be able to stuff longer programs into less space. This may be essential to the proliferation of the medium. At about half a minute of sound per megabyte, ITR doesn't have time to waste.

FOR MORE INFORMATION...

For more information, send electronic mail to "info@radio.com". You'll automatically receive the basic ITR information. For an updated list of sites that carry ITR, send email to "sites@radio.com".

The latest information, including program schedules, is available on the Usenet group "alt.internet.talk-radio". ■

WHERE TO FIND
INTERNET TALK RADIO

Internet talk radio files are available from a variety of anonymous FTP sites worldwide. You should be able to find them at the following sites, but check the updated list to find your closest site.

Northern Arizona University, Flagstaff, AZ: ftp.nau.edu (134.114.64.70) in directory "/talk-radio".

Oregon Graduate Institute, Beaverton, OR: cse.ogi.edu (129.95.20.2, 129.95.40.2, or 129.95.46.2) in directory "pub/talk-radio".

University of Oregon, Eugene, OR: ftp.uoregon.edu (128.223.32.35) in directory "/pub/internet-talk-radio".

ITR is also available via the World Wide Web in"http://www.ncsa.uiuc.edu/radio/radio.html".

Chip Wars

PowerPC And Other Contenders Challenge Pentium

BY NORRIS PARKER SMITH

The impact of Motorola's new PowerPC 601 RISC microprocessor, first fruit of a collaboration with IBM and Apple, goes far beyond an aggressive pricing strategy for the new chip.

Slated to sell for half or less the price of Intel's new Pentium microprocessor—due to reach the market in quantity over approximately the same schedule—the chip possesses equivalent muscle. On Wall Street, as investors reacted primarily to the price differential, Intel's stock quotation suffered a 6% drop.

> **THE TWO NEW MICROPROCESSORS REFLECT THE COLLISION OF TWO INCOMPATIBLE FORCES.**

Other significant aspects of the unusual market conditions into which the chip will emerge:

•The PowerPC symbolizes the accelerating desktop collision—and overlapping—of the PC and workstation cultures. Sun's Solaris will soon do battle on a new level against Microsoft's forthcoming Windows NT operating system.

•The PC division of IBM, using the Pentium, will be competing directly in the same price and performance range with a new low-end product, based on the PowerPC, from IBM's workstation division.

•Apple Computer will leverage the PowerPC in two directions: to keep up with Intel-based systems in the performance sweepstakes, while attempting a drive upward into the RISC- and UNIX-based workstation market.

These developments are likely to take place during the rest of this year and the first half of 1994. The real-life consequences will not be fully clear until about a year from now, when machines using both the Pentium and PowerPC will have been available for a while and customers will have had direct experience with Window NT's ease—or difficulty—of use.

Other implications will become clearer over the longer term, when the Taligent object-oriented operating system, under development by IBM and Apple, appears. Production will also begin on the sister chips of the PowerPC family: the 620, for heavy-duty floating point work; the 604, for mid-range systems; and the 603, primarily for notebook and smaller machines.

The present gives enough to think about.

PERFORMANCE AND PRICE

The low prices listed for the 601 are the result of a basic design philosophy, not simply a go-for- broke marketing strategy.

Randy Groves, head of IBM's Advanced Workstation Systems division, explained recently to an IBM user group meeting at UCLA that the PowerPC was conceived from the start as relatively simple, with a low device count, low stress, and low heat dissipation. This results in a small chip that is easy to manufacture—among other things, more microprocessors can be produced from a single wafer of silicon. It differs in all these respects from the three million-plus-device Pentium, whose high demands for cooling also demand extra interior space, higher-output fans, and other measures that raise total costs for system manufacturers.

RISC designs also permit simplification. In the crudest terms, less stuff needs to be loaded onto the silicon surface. In the Pentium, Intel has added other stuff to achieve improved floating point-performance—heretofore not very important for PCs, but required to make the most of high-performance operating systems like NT.

Arguments about comparative-performance will continue indefinitely, but the PowerPC 601 and Pentium, each running at 66MHz, are expected to produce about the same results on the standardized SPECmark benchmark, with the PowerPC doing better on the floating point measure.

For comparison, both are at roughly the same level as the MIPS R4000, a workstation chip that has been on the market for over a year and has been superseded by the R4400. All three deliver at least twice the SPEC performance of an Intel 486DX2 (33/66 MHz), with an even greater margin in floating point capacity.

Neither the Pentium nor the PowerPC is any threat to workstations based on cutting-edge chips like Digital Equipment' 150MHz Alpha, the MIPS R4400 at 75/150MHz, and Hewlett-Packard's 99MHz PA-RISC. All rate much higher, notably on the floating point portion of the SPEC benchmark. These Schwarzenegger chips are, however, at least as large and hot as the Pentium despite their RISC designs.

Copyright © 1993 by Norris Parker Smith. All rights reserved.

Technoland

We Do Business Your Way!
(408) 524-9188

COMPLETE SYSTEM SPECIAL!

80286-12 MHz Complete System

- 80286-12 MHz
- 1MB RAM Expandable to 4MB
- 1.2MB Floppy Drive
- 40MB Hard Drive
- 14" Mono Monitor
- Mono Display Card
- 2 Serial, 2 Parallel, 1 Game Ports
- 101-Key Enhanced Keyboard
- IDE Host Adapter
- Slim Case w/200 W Power Supply

Only $398

VESA Local-Bus 486DX2-50 MHz System

- Intel 80486DX2-50MHz CPU w/256KB C
- 4MB RAM Expandable to 32MB
- 1.2MB & 1.44 Floppy Drive
- 213MB Maxtor Hard Drive
- Super VGA Monitor 1024x768 DP .28
- Local-Bus VESA SVGA Hi-Color w/1MB
- Local-Bus 32-bit IDE Host Adapter
- 101-Key Enhanced Keyboard
- 2 Serial, 1 Parallel, 1 Game Ports
- Mini Tower Case w/200 W Power Supply

Only $1588

Customized Configuration Available
Call For Best Price Quote

IDE & SCSI CONTROLLERS

IDE 2HD/2FD	$14
IDE 2FD/2HD w/S, 1P, 1G	18
IDE VLB w/2S, 1P, 1G	55
TECO DC-680 IDE VLB CACHE 4HD/2FD	190
TECO DC-620 EISA IDE CACHE 4HD/2FD	190
ADAPTEC 1542C SCSI BUS MASTER	195
ADAPTEC 1742 EISA SCSI 32 BIT	415
FUTURE DOMAIN SCSI 16-BIT	65
ULTRASTOR 14F 10MB/SEC	192
ULTRASTOR 34F VLB	285

IDE HARD DRIVE SPECIAL!

60 MB CONNER CP3006411	$145
80 MB CONNER CP30084/MAXTOR 7080A	$175
120 MB CONNER CP30104H/MAXTOR 7120A	$185
170 MB CONNER CP30174E	$225
200 MB CONNER CP3024/MAXTOR 7213A	$290
250 MB CONNER CP30254/MAXTOR 724A	$299
340 MB MAXTOR 7345A	$415
540 MB CONNER CP3544/MAXTOR LXT535A	$875

SCSI & LARGER CAPACITY HARD DRIVES ARE ALSO AVAILABLE

AUTOMATIC LASER-SAFE PRINT-SHARING ADAPTERS

- Flexible Wiring Transmission—Bus, Tree, Ring, Star, etc.
- High Speed Transmission, up to 10,000 Characters/Second
- Transmission Distance Up To 1,300
- Uses a Simple 6-Wire Telephone Cable, No Power Required

GT-100 SERIES

Up To 40 Computers Share 1 Printer

GT-100SK: Starter Kit (Two Com. 1 Printer)	$125
GT-100T: Transmitter w/25 Foot Cable	49
GT-100P: Receiver w/25 Foot Cable	49

GT-400 SERIES

Up To 40 Computers Share Up To 4 Printers
DOS 5.0 & Windows 3.X Compatible

GT-400SK: Starter Kit (Two Com. 1 Printer)	$175
GT-400T: Transmitter w/20 Foot Cable	79
GT-400P: Receiver w/20 Foot Cable	79

ADD PHOTO & SOUND TO YOUR COMPUTER!
MULTIPRO PHOTO-8 UPGRADE KIT

- **KODAK Photo CD Licensed**
- Mitsumi CD-ROM 350ms
- Interface Kit
- New Multisession Drive
- Kodak Photo Sampler on CD
- Kodak CD Access Software
- Kodak Disposable 35mm Camera
- MCS MusicRack Software
- Sound In/Out & MIDI/Joystick Port
- Battle Chess CD Enhanced
- PhotoMagic Image Processing Software
- Monologue Speech Synthesizer
- 8-Bit Sound Card Compatible with Sound Blaster & Ad Lib
- Speaker-One Pair
- Jukebox and Sound Tracks
- CD-Player and Soundscript

PLEASE CALL FOR OTHER CD-ROM KITS AVAILABLE

Best Value $435

FACTORY REPS IN STORE DEMOS JUNE 2, 9, 16 12-2 PM

HUGE SELECTION OF CD TITLES IN STOCK!

*ATLAS *GRAPHIC *SOUND, MUSIC
*EDUCATION *REFERENCE *FAMILY APPLICATION
*GAMES *SHAREWARE *ENTERTAINMENTS *ADULT

Purchase total of 4 titles at any time and get an additional title *FREE!* from our slected list.

CD ROM DRIVES SPECIAL!!!

*MITSUMI CD ROM, Photo CD Compatible, W/Inetrface 16-bit, 32KB Buffer, 350ms *$185*

NEC CD Express CDX25X KIT:

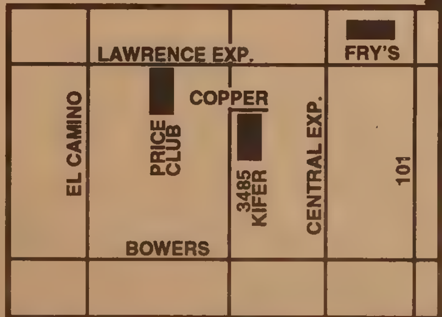
NEC CDR 25 CD ROM Drive, SCSI Interface, 64 KB C, One Pair of amplified mini speakers, TEN TITLES, (LOOM, Publish It, Great Cities of the World, The Family Doctor, Storytime....etc). *$389*

No Surcharge for Credit Card Purchases

No **Annoying Voice Mail Answering Machines**

Yes We Gladly Accept P.O.'s From Corp., Educ. and Government Accounts

Yes **We Will MEET or BEAT ANY ADVERTISED PRICE!**



COME SEE OUR SHOWROOM!

1 Block Away From Price Club At The Intersection of Kifer and Copper

3485 KIFER ROAD SANTA CLARA, CA 95051

TEL: (408) 524-9188

VISA **FAX: (408) 524-9193** MasterCard

MON-FRI 9 AM-6 PM/SAT 10 AM-5 PM

Prices subject to change w/o notice, not responsible for typographic errors

COMPUEXPO '93

Reseller Passport to The Future

"I need a place to shop for things I haven't seen before"

"If selling on price isn't working, how do we sell?"

"In today's market it's crucial to sell on value"

"It's vital to know what markets are becoming a commodity and which ones to get out of"

Visas
September 9-11, 1993
Las Vegas
ASCII PAVILION
Las Vegas, 1993
TAIWAN PAVILION
PASSPORT
14
15

"We're always looking for more places to buy products and service"

"It's crucial to find technology that allows me to compete against the major brands"

"To be competitive our company actively seeks out new vendors and new ways to add value"

"Where can I meet Asian manufacturers without going to Asia"

Be There!

COMPUEXPO '93 • GLOBAL PC TRADE SHOW

Sept. 9-11, 1993 • Las Vegas Convention Center • Nevada, USA

Co-Sponsored By INFO WORLD · COMPUTER TECHNOLOGY REVIEW® · ASCII THE ASCII GROUP, INC. · MICROTIMES · INFO WORLD Direct · THE ASM GROUP The Asian Sources Media Group

FAX BACK RESPONSE

☐ I am interested in exhibiting at COMPUEXPO; please send me exhibitor information.

☐ I am interested in attending COMPUEXPO; please send me attendee information.

☐ Have a representative call me.

Name ________________ Mr. ☐ Mrs. ☐ Ms. ☐

Company ________________ Title ________________

Address ________________

City ________________ State ________ Zip ________

Phone ________________ Fax ________________

My company's primary business activity:

☐ Manufacturing ☐ VAR ☐ Reseller ☐ Distributor ☐ System Integrator ☐ Other: ________

Fax back today to receive more information on COMPUEXPO '93!

Fax: (510) 657-3499

COMPUEXPO
Marketing Edge & Technology Source

September 9-11, 1993
Las Vegas Convention Center
Las Vegas, Nevada, USA
Hosted by
UNSC Investment Group
39899 Balentine Dr., #175, Newark, CA 94560-9902
Tel: (510) 657-3418 • Fax: (510) 657-3499

MT

THE POWERPC PART OF THIS GRAND DESIGN WILL BUMP RUDELY INTO THE SIMPLER STRATEGY OF IBM'S PC DIVISION.

DESKTOP CONVERGENCE

The two new microprocessors reflect the collision of two incompatible forces. This is most evident in hardware: workstation manufacturers like IBM are seeking to extend their range downward to the high-volume PC market, while PC makers grope upward toward the somewhat higher margins of the workstation segment.

Software mirrors this trend. Microsoft's NT, reaching upward toward more desktop power, is the most obvious example. Sun Microsystems, which is increasingly shaping itself as a software company, pushing its UNIX-based Solaris, is attacking down-market.

At first glance, Microsoft has the advantage, building on its vast library of applications that run on Windows. Yet NT marks a move from a 16-bit to a 32-bit architecture, and it will be more than a short while before developers produce applications making full use of NT's 32-bit capabilities.

On the other hand, Solaris, which is being adapted to the PowerPC, can draw upon the almost equally large libraries of UNIX applications developed for Sun and other RISC workstations. In the workstation world, 64 bits are the rule. Solaris will thus out-power NT from the start.

Consequently, Microsoft will find it difficult to bite big chunks out of the workstation market, while Sun is likely to encounter less than enthusiasm among PC users, whose acceptance of UNIX has been at best tepid.

IBM VS. IBM

IBM's workstation division is unique among workstation makers in deploying along two distinct paths of microprocessor development. Groves declared that his division's RS6000 workstations, based since their initial introduction in 1990 upon its RIOS-1 multichip microprocessor, will benefit later this year from the launch of the RIOS-2.

Additional integer and floating-point chips on the RIOS-2 should enable it to deliver at least twice the performance of the RIOS-1, which would take it up to the 200 to 250 MFLOPS range or higher. This is in reach of the fastest currently announced RISC microprocessor, the MIPS TFP, at 300 rated MFLOPS, due for initial shipment toward the end of 1993.

IBM's workstation division, one of the blue segments best qualified for profitable survival as an independent business (although it is only now approaching profitability) has far-reaching ambitions. Groves explained that lower-end machines based on the PowerPC are only part of an overall strategy to establish a full range of systems from the PC level up to supercomputers.

At the high end, Groves' division has paired up with former mainframers from IBM's Kingston plant to adopt RIOS technology to a new series of Power Parallel highly parallel systems.

The PowerPC part of this grand design will bump rudely into the simpler strategy of IBM's PC division: hang on to market share and decide whether to struggle onward with OS/2 or give up and do Windows like everyone else. Competitive pressures will force the blue PC managers to offer Pentium-based machines in a market where they will encounter less costly systems from the workstation folks employing the PowerPC.

In the old days, Armonk would have imposed a papal division of the market upon the two contenders. In the New IBM of today, a solution of this kind appears doubtful.

APPLE

In the midst of this hurly-burly, Apple, like its PC counterparts at IBM, is anxious to keep hold of its historical minority share of the PC pie—and looks to the PowerPC to provide the power.

Groves remarked that applications ported to the Macintosh System 7 will be able to operate on the PowerPC, which has the same genealogy in the Motorola family tree as the 680X0 series used in the Mac. This should enhance Apple's reach, even though many of the systems using those applications may in future have blue labels.

Unless the Taligent system lets Apple provide a real edge over Windows NT, Solaris, and other UNIX solutions, Apple is likely to find it very difficult to roll uphill into a significant position in the workstation market. The alternative would be for Apple to set its beloved Macintosh system aside for that market and embrace wholeheartedly Solaris or some other UNIX approach.

NT ON POWERPC?

For Microsoft, the best (but unlikely) scenario is controlling everything. Failing that, it would probably strive to control the balance between contenders. A decision to port Windows NT to PowerPC machines would be a whopping endorsement for Motorola and its associates, and a further erosion of Intel's market ownership.

Some analysts foresee this outcome, which would add significantly to the market for Windows NT. Everything is changing—not just the advent of the Pentium and PowerPC chips, the most evident features of the transformation. ■

continued from page 114

The availability of such tools begs the question, though. The reaction from Prodigy's BBS users was swift and almost entirely negative. Those whose wrath might have been assuaged by knowing how an offline reader would affect their monthly bills have expressed surprise that even with such a huge pricing change, they are not able to evaluate the offline reader because it isn't ready. Without being able to use it themselves, users are viewing the potential benefit of such software warily.

Since Glatzer loosened up the creation of special interest group BBSes and topics last year, and cut down on censorship (where postings might be rejected out of hand for being "off topic"), over four hundred topic areas and numerous subtopics have sprung up. Because Prodigy has attracted online novices, many special interest groups consist largely of people not ordinarily heard from online, such as stay-at-home moms and senior citizens.

Some special interest groups have parallel forums on other services, but each service has its particular strengths. Prodigy's Genealogy BBS, arguably the largest group of genealogy researchers online, was hit particularly hard by the news. Another popular forum, Computer Club, has strengths not matched anywhere for the price. San Jose resident Margaret MacKay says, "I mainly use the Computer Club bulletin board—it has been of tremendous help to a new Mac user like me. People there are more than willing to help others, regardless of how elementary the problem is! I have learned so much from just reading notes. I really feel quite sad, as I will not be able to use the BBSes as of July 1, and I will lose track of my online friends. One of Prodigy's strengths is its bulletin boards, and they will be losing that. Very few of us can afford to help people anymore."

CHANGING THE BUSINESS MODEL

Prodigy was designed to be expensive to operate, but it was also designed to make most of its revenue from advertisers. That plan has not been as successful as projected, and it's now believed that Prodigy makes a significant portion, if not most, of its income from monthly user fees. This means that Prodigy, like other online services, is reaping benefits from people who hold accounts but do not use them.

But the new plan contains built-in inequities in the pricing scheme. Although Prodigy has dropped its $2/month surcharge for 9600 baud, access nodes outside of the major urban areas are mostly 2400 baud. Prodigy's response to the "inequity" issue is to point to the other online services, but most of them are text-based and have integrated offline readers; downloading is inherently faster, and the same amount of information is cheaper, even with hefty 9600-baud surcharges.

Prodigy is slow by design and uses distributed (local) processing. The difference in download speed between 2400 baud and 9600 baud, or processing speed of the user's CPU, is not entirely the fault of the individual user when the system itself is inherently slow. Add to that premium timed charges, and users, who time movement from screen to screen in terms of minutes, not seconds, are crying "foul." When Prodigy spokesman Brian Ek characterizes the hourly access charges as "competitive," one has to wonder if he's ever used a text-based online service, because to compare access time on slow Prodigy with access time on a text-based service is comparing apples to oranges. (Prodigy claims that all nodes will be upgraded to 9600 baud by the end of the year.)

User MacKay and others brought up the question of Macintosh support. "I was very surprised that the new pricing structure allowed only two hours of BBS usage per month. That's nothing! They are effectively 'getting rid of' their Mac membership, as Prodigy is extremely slow on a Mac. Plus, I'm relatively sure the new 'tools' will not be available to us—we can't even download anything now [DOS users can download software from Prodigy's Ziffnet service]. Sounds as though Prodigy wants members who don't use the service." Prodigy claims that its offline reader will be available for all platforms, but has not rebutted the claim that it is intentionally driving BBS users away.

Two Prodigy executives flew to San Francisco to meet with Prodigy User Group's Matsumura (who hopes to at least work out a suitable compromise for Prodigy's community of disabled users, many of whom are on fixed incomes).

It's ironic that Prodigy, which defied the economic wisdom of national online services with its original flat-fee offerings, demonstrated to other services that there is a very large market in price-sensitive telecommunity. Other services are seizing the opportunity and rolling out the red carpet for Prodigy "refugees," and some of the special interest groups have already set up shop elsewhere. CEO Glatzer estimates the number of Prodigy BBS users to be 20% (of an estimated one million users), or approximately two hundred thousand with money in their budgets for low-cost telecomm. The big winner appears to be GEnie, but America Online, National Videotex Network, and Delphi are all making inroads.

Stay tuned. ■

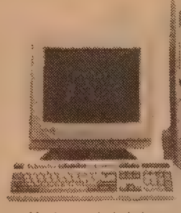
> ❀ *The positive changes regarding the BBSes in the last year have softened some criticism of the service. Now many BBS users, facing monthly bills of $100–$200 and up per month, feel as if Prodigy's regarding them as cash cows.* ❀

CUSTOM SYSTEM SUPER SOURCE

ALEXIS 340

386DX-40Mhz

MINI TOWER SYSTEM


Monitor not included

- AMD 386DX-40MHz
- 128K Cache (up to 256K)
- Mini Tower with 230W UL Power Supply
- Floppy Drive 1.2 or 1.44
- IDE Controller 2FD/2HD,
- I/O 2 Serial, 1Parallel, 1 Game Port.
- 101 Mitsumi Keyboard
- Clock & Calender
- 0MB RAM (up to 32MB)

$299

DOS 6.0 and Windows 3.1 ....add $88

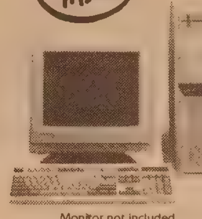
CUSTOMIZE TO YOUR NEEDS...

ALEXIS 433VL

486DX-33Mhz

VESA LOCAL BUS MED TOWER SYSTEM

intel inside


Monitor not included

- Intel 486DX-33MHz
- ZIF Socket PANTUIM OverDrive Ready
- 2 Local Bus 32-Bit Slots
- 8 Slots 16bit with 2 Local Bus 32bit Slots
- 128K Cache (up to 256K)
- MEDIUM Tower with 235 UL Power Supply
- Floppy Drive 1.2 or 1.44
- IDE Controller 2FD/2HD,
- I/O 2 Serial, 1Parallel, 1 Game Port.
- 101 Mitsumi Keyboard
- Clock & Calendar
- 0 RAM (up to 32MB)

$599

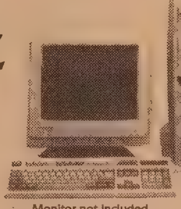
DOS 6.0 and Windows 3.1 ....add $88

CUSTOMIZE TO YOUR NEEDS...

ALEXIS 452VL

486SLC2-50Mhz

VESA LOCAL BUS MED TOWER SYSTEM


Monitor not included

- ALARIS MotherBoard Manufactured by IBM
- IBM 486SLC 2/50MHz CPU
- 2 Local Bus 32-Bit Slots
- 8 Slots 16bit
- 64K Cache (up to 128K)
- MEDIUM Tower with 235 UL Power Supply
- Floppy Drive 1.2 or 1.44
- IDE Controller 2FD/2HD,
- I/O 2 Serial, 1 Parallel,1 Game Port.
- 101 Mitsumi Keyboard
- Clock & Calendar
- 0 RAM (up to 16MB)

$529

DOS 6.0 and Windows 3.1 ....add $88

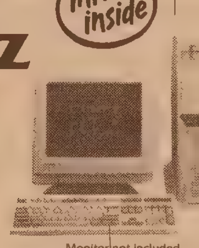
CUSTOMIZE TO YOUR NEEDS...

ALEXIS 466VL

486DX/2-66Mhz

VESA LOCAL BUS MED TOWER SYSTEM

intel inside


Monitor not included

- Intel 486DX2-66MHz
- ZIF Socket PANTUIM OverDrive Ready
- 2 Local Bus 32-Bit Slots
- 8 Slots 16bit with 2 Local Bus 32bit Slots
- 128K Cache (up to 256K)
- MEDIUM Tower with 235 UL Power Supply
- Floppy Drive 1.2 or 1.44
- IDE Controller 2FD/2HD,
- I/O 2 Serial, 1Parallel, 1 Game Port.
- 101 Mitsumi Keyboard
- Clock & Calendar
- 0 RAM (up to 32MB)

$859

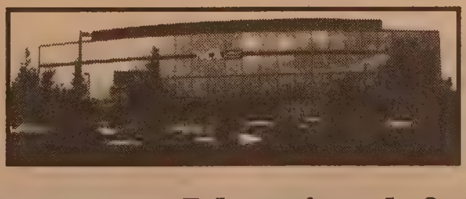
DOS 6.0 and Windows 3.1 ....add $88

CUSTOMIZE TO YOUR NEEDS...

plus: 19 Pages of Options to Add-on

JUNE 93 CATALOG

NCA
SUNNYVALE
1202 KIFER RD.
SUNNYVALE, CA 94086
(408) 739-9010
FAX (408) 739-2420

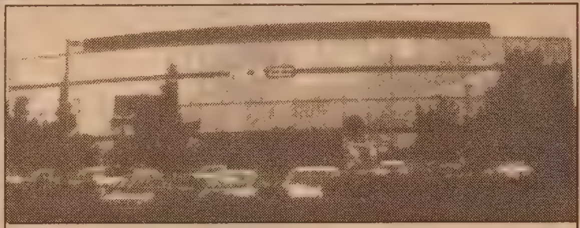


NCA
SAN JOSÉ
962 BLOSSOM HILL RD.
SAN JOSE, CA 95123
(408) 363-4600
FAX (408) 363-4610

Corporate, Dealer, Government, Educational, & International Accts.:
(408) 522-8672 Fax(408) 739-2420

©1993 INVERSE CORPORATION

HARD DRIVE SUPER SOURCE



The largest Selection of Memory Storage Products, Worldwide

RELIABILITY:
We offer the best Brand Name Products! BRAND NEW , NO Refurbished or Reconditioned. We're an AUTHORIZED Dealer for most products we sell.

PRICE:
*Due to the backing of specific Vendors and coupled with large quantity orders we are able to pass along the tremendous savings to you. **If you see it for less, please give us a chance to earn your business.***

CONTINUED BUSINESS:
67% of our business is from repeat and referral customers, and well over 30% of the Fortune 1000 Companies trust their business to NCA.

WARRANTY:
*Up to 5 YEARS full manufacturers warranty at NO EXTRA CHARGE**

SATISFACTION:
NCA will make sure that the proper assistance is delivered to all our customers for a 100% total satisfaction. GUARANTEED.

▼ SPECIAL HANDLING ▼

CORPORATE ACCOUNTS
Corporate , Educational Institutions, Government Agencies, - ALL Welcome! Our corporate department can meet your needs large or small.

CORPORATE INQUIRES
(408) 522-8672
Mon-Fri 8:30am - 5:30pm PST
or FAX (408) 739-2420

DEALER SUPPORT
Domestic and International departments with dealer network worldwide. We take care of our dealers.

DEALER INQUIRES
(408) 522-8673
Mon-Fri 8:30am - 5:30pm PST

INTERNATIONAL ORDERS
International orders taken via:
FAX (408) 739-2420 *or* CALL (408) 522-8674
MasterCard, Visa, & Wire transfers accepted

TOSHIBA

BEST VALUE

Superior Quality and Value
Brand new with 5-year factory warranty

877Mb SCSI-II
3.5"
12ms
512K Cache
$899
External $1029

1.2GB SCSI-II
Formatted Capacity
3.5"
12ms
512K Cache
$1139
External $1249

ALPS IDE

CAPACITY	SPEED	SIZE	PRICE
105MB	13	3.5X1"	$159

HEWLETT PACKARD

Brand new with 5-year factory warranty

SCSI

CAPACITY	M/N	CACHE	SPEED	SIZE	INTERNAL	EXTERNAL
1.2GB	C2247	256K	10ms	3.5"	$1099	$1229
1.2GB	C97558	256K	13ms	FH	$1399	$1599
1.8GB	C3009	256K	11.5ms	FH	$2099	$2299
2.0GB	C3010	256K	11.5ms	FH	$2499	$2699

DEC

5-YEAR WARRANTY

High End, High Capacity

Fast SCSI-II

CAPACITY	M/N	CACHE	SPEED	SIZE	INTERNAL	EXTERNAL
1.0GB	3105S	3.5"	5400	9.5ms	$1299	$1429
1.6GB	3160S	3.5"	5400	9.5ms	$1699	$1829
2.0GB	5200S	FH	3600	12.5ms	$1899	$2099
3.5GB	5350S	FH	5400	11.5ms	$3599	$3799

HITACHI®

High-End Storage Solutions

SCSI-II / ESDI*

CAPACITY	M/N	RPM	SIZE	TYPE	INT.	EXT.
1.1GB	DK315C-11	5400	3.5"	*FAST* SCSI-2	$1699	$1899
1.4GB	DK315C-14	5400	3.5"	*FAST* SCSI-2	$2099	$2299
1.5GB	DK516-15*	3600	FH	ESDI	$2199	N/A
1.6GB	DK516C-16	3600	FH	SCSI-2	$2199	$2399
3.7GB	DK517-37	5400	FH	*FAST* SCSI-2	$3999	$4199

CONNER®

Brand new with one year factory warranty

IDE

CAPACITY	M/N	CACHE	SPEED	SIZE	PRICE
40MB	CP3000	32K	25ms	3.5X1"	$139
60MB	CP30064	32K	19ms	3.5X1"	$139
80MB	CP30084	64K	19ms	3.5X1"	$179
120MB	CP30104H	32K	19ms	3.5X1"	$188
170MB	CP30174E	64K	17ms	3.5X1"	$209
212MB	CP30204	256K	12ms	3.5X1"	$279
250MB	CP30254	64K	14ms	3.5"	$299
540MB	CP30544	256K	<12ms	3.5X1"	$799

SCSI

CAPACITY	M/N	CACHE	SPEED	SIZE	INTERNAL	EXTERNAL
40MB	CP3040	32K	25ms	3.5X1"	$Call	$Call
80MB	CP30080	32K	19ms	3.5X1"	$219	$329
170MB	CP30170	64K	17ms	3.5X1"	$249	$359
212MB	CP30200	256K	12ms	3.5X1"	$319	$429
540MB	CP3540	256K	12ms	3.5"	$839	$949

SAMSUNG

Electronics

2 Year Warranty

IDE

CAPACITY	SPEED	SIZE	PRICE
120MB	17	3.5X1"	$169
250MB	15	3.5X1"	$279

NCA's High Quality

EXTERNAL DRIVES

For MAC, SUN, NeXT, and IBM Compatibles
Complete with Cables, and formatting Software for Mac

Ask About...

EXPRESS EXCHA

OPTIONAL SERVICE

&...

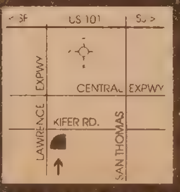
EXTENDED WAR

OPTIONAL SERVICE

FULL SERVICE CENTER

- ▶ Complete installation center for PC and MAC
- ▶ Same Day Service
- ▶ Hard Drive and Memory installation

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE



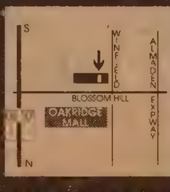
NCA
SUNNYVALE
1202 KIFER RD, SUNNYVALE, CA 94086

SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

NCA
SAN JOSE
962 BLOSSOM HILL RD, SAN JOSE' CA 95123



Corporate, Educational, Government, & International ACCTS: (408) 522-8672

©1993 INVERSE CORPORATION

HARD DRIVE SUPER SOURCE

Quantum™

Specify Quantum, Specify Quality

AUTHORIZED Quantum™ RETAILER

BRAND NEW WITH A TWO YEAR FACTORY WARRANTY
1 Yr warr on 2.5" Drives

IDE

CAPACITY	M/N	CACHE	SPEED	SIZE	PRICE
120MB	GO120	32K	16ms	2.5"	.....$259
160MB	GO160	32K	16ms	2.5"	....$Call
42MB	ELS42A	32K	19ms	3.5X1"	...$109
52MB	LPS52A	64K	11ms	3.5X1"	...$129
85MB	ELS85A	32K	17ms	3.5X1"	...$179
120MB	LPS120A	256K	*Fast*	3.5X1"	...$239
127MB	ELS127A	32K	17ms	3.5X1"	...$199
170MB	ELS170A	32K	17ms	3.5X1"	...$219
240MB	LPS240A	256K	*Fast*	3.5X1"	...$299
525MB	LPS525AT	256K	*FAST*	3.5X1"	...$799

FOR NOTEBOOKS

SCSI

CAPACITY	M/N	CACHE	SPEED	SIZE	INTERNAL	EXTERNAL
120MB	GO120S	32K	*Fast*	*FOR MAC POWERBOOKS*	$319	N/A
42MB	ELS42S	32K	19ms	3.5X1"	$159	$269
52MB	LPS52S	64K	11ms	3.5X1"	$189	$299
85MB	ELS85S	32K	17ms	3.5X1"	$189	$299
105MB	LPS105S	64K	<11ms	3.5X1"	$199	$299
120MB	LPS120S	256K	*Fast*	3.5X1"	$249	$359
127MB	ELS127S	32K	17ms	3.5X1"	$229	$339
170MB	ELS170S	32K	17ms	3.5X1"	$249	$359
240MB	LPS240S	256K	*Fast*	3.5X1"	$309	$429
525MB	LPS525	256K	*Fast*	3.5"X1"	$799	$929
700MB	PD700	256K	<10ms	3.5"	$1049	$1159
1.0GB	PD105S	512K	<10ms	3.5"	$1099	$1229
1.2GB	PD1225	512K	<10ms	3.5"	$1199	$1329

▶ **FACTORY NEW WITH FULL FACTORY WARRANTY**

Seagate

World Class Data Storage

AUTHORIZED Seagate RETAILER

BARRACUDA SERIES

- 3.5"
- 7200RPM
- 500,000MTBF
- Fast SCSI-II, 8ms

BARRACUDA I / 1.6GB
ST11950N
$1929

BARRACUDA II / 2.1GB
ST12550N
$2599

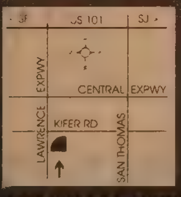
IDE

CAPACITY	M/N	CACHE	SPEED	SIZE	.....PRICE
42MB	ST351	32K	19ms	3.5X1"	..........$129
107MB	ST3120	64K	15ms	3.5X1"	..........$189
130MB	ST3144A	64K	15ms	3.5X1"	..........$209
240MB	ST3283A	256K	12ms	3.5X1"	..........$329
425MB	ST1550A	256K	12ms	3.5"X1"	.........$749
525MB	ST1600A	256K	12ms	3.5"X1"	.........$799

SCSI

CAPACITY	M/N	CACHE	SPEED	SIZE	INTERNAL	EXTERNAL
240MB	ST3283N	256K	12ms	3.5X1"	$369	$479
425MB	ST3550N	256K	10ms	3.5X1"	$749	$859
535MB	ST3600N	256K	10ms	3.5X1"	$829	$939
670MB	ST4767N	256K	11ms	FH	$1399	$1599
1.2GB	ST11200N	256K	10ms	3.5"	$1089	$1199
1.2GB	ST41200N	256K	14ms	FH	$1089	$1239
1.6GB	ELITE-I	X	11ms	FH	$1799	$1999
1.6GB	ST41651	256K	14ms	FH	$1399	$1599
1.7GB	ST11900N	256K	9ms	3.5"	$1699	$1829
2.1GB	ST42100N	256K	14ms	FH	$1749	$1959
2.4GB	ST12400N	256K	10ms	3.5"	$1999	$2129
2.4GB	ELITE-II	X	11ms	FH	$2399	$2599
3.4GB	ELITE-III	X	11ms	FH	$2999	$3199

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE



NCA
SUNNYVALE
1202 KIFER RD, SUNNYVALE, CA 94086

SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

NCA
SAN JOSE
962 BLOSSOM HILL RD SAN JOSE CA 95123

OAKRIDGE MALL

Corporate, Educational, Government, & International ACCTS: (408) 522-8672

©1993 INVERSE CORPORATION

HARD DRIVE SUPER SOURCE

Maxtor®

Novell Labs Tested & Approved

345MB IDE

- Model 7345A
- 3.5"X1"
- 15ms

$359

FEEL THE MAGIK
FAST SCSI-2 SUPER FAST MAGIK SERIES

540MB
- MXT-540S
- 8.5ms Access Time
- 3.5"X1"
- 256K Cache
- 6300RPM
- 300,000MTBF

$889

1.2GB *(FORMATTED CAPACITY)*
- MXT-1240S
- 8.5ms Access Time
- 3.5"
- 256K Cache
- 6300RPM
- 300,000MTBF

$1299

IDE

	MODEL	CACHE	SPEED	SIZE	INTERNAL
128MB	25128A	32K	15ms	for Notebooks	.....$299
130MB	7120A	64K	15ms	3.5X1"	.....$189
213MB	7213A	64K	15ms	3.5X1"	.....$259
245MB	7245A	64K	15ms	3.5"	.......$278
340MB	7345A	64K	15ms	3.5"	.......$359
535MB	LXT-535A	64K	12ms	3.5"	.......$879

SCSI

	MODEL	CACHE	SPEED	SIZE	INTERNAL	EXTERNAL
120MB	7120S	64K	15ms	3.5X1"	$209	......$319
213MB	7213S	64K	15ms	3.5X1"	$289	......$399
340MB	LXT-340S	64K	15ms	3.5"	$569	......$679
540MB	***MXT-540***	***256K***	***8.5ms***	***3.5X1"***	***$889***	***......$999***
1.2GB	***MXT-1240***	***256K***	***8.5ms***	***3.5"***	***$1299***	***...$1429***
1.2GB	PO-12S	256K	13ms	FH	$999	....$1199
1.7GB	P1-17S	256K	13ms	FH	$1299	...$1499

THE FULL MAXTOR LINE IS AVAILABLE AT
YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE™

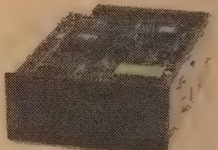
FUJITSU®

Novell Labs Tested & Approved

5-YEAR WARRANTY

520MB 3.5"

- 3.5" HH Drive
- 11ms Seek Time
- 240K Read/Write Cache(SCSI)
- 5-Year Warranty



IDE.. $759
M2624T

SCSI..$759
M2624FA

IDE

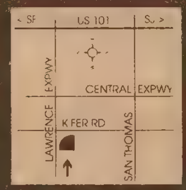
	MODEL	CACHE	SPEED	SIZE	INTERNAL
330MB	M2622T	64K	12ms	3.5"	.....$599
425MB	M2623T	64K	12ms	3.5"	.....$759
520MB	M2624T	64K	12ms	3.5"	.....$759

SCSI

	MODEL	CACHE	SPEED	SIZE	INTERNAL	EXTERNAL
425MB	***M2623SA***	***240K***	***11ms***	***3.5"***	***...$699***	***....$799***
520MB	M2624FA	240K	11ms	3.5"	....$759	....$869
1.2GB	M2694SA	256K	10ms	3.5"	...$1099	.$1229
1.2GB	M2266SA	256K	14ms	FH	....$1099	.$1299
2.0GB	M2652SA	256K	11ms	FH	....$1899	.$2099
2.4GB	M2654SA	256K	12ms	FH	....$2449	.$2649

THE FULL FUJITSU LINE IS AVAILABLE AT
YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE™

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE



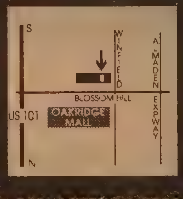
NCA SUNNYVALE
1202 KIFER RD. SUNNYVALE, CA 94086

SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

NCA SAN JOSE´
962 BLOSSOM HILL RD. SAN JOSE´ CA 95123



Corporate, Educational, Government, & International ACCTS: (408) 522-8672

©1993 INVERSE CORPORATION

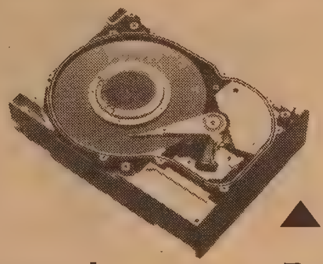
HARD DRIVE SUPER SOURCE

MICROPOLIS

Brand new with 5-year factory warranty

SCSI-II / *FAST* SCSI-II

1.2GB
- MC2112
- 3.5"
- 5400
- 10ms

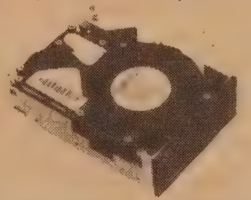


Internal	External
$1089	**$1199**

Also Available in AT/IDE Interface

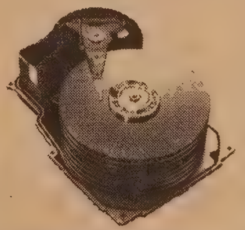
1500 Series Disk Drives/SCSI Interface

CAPACITY	M/N	RPM	SPEED	SIZE	INTERNAL	EXTERNAL
1.2GB	MC1598	3600	15ms	FH	$1299 ...	$1499
1.5GB	MC1528	3600	15ms	FH	$1799 ...	$1999
2.0GB	MC1548	3600	14ms	FH	$1849 ...	$2049



1600 Series/SCSI Interface

CAPACITY	M/N	RPM	SPEED	SIZE	INTERNAL	EXTERNAL
340MB	MC1684	3600	14ms	HH	$1099 ...	$1209
670MB	MC1624	3600	14ms	HH	$1149 ...	$1259



1900 Series Disk Drives/SCSI Interface

CAPACITY	M/N	RPM	SPEED	SIZE	INTERNAL	EXTERNAL
1.6GB	MC1908	5400	11ms	FH	$1899 ...	$2099
2.4GB	MC1924	5400	11ms	FH	$2499 ...	$2699
3.6GB	MC1936	5400	11ms	FH	$3699 ...	$3899

WESTERN DIGITAL

Accept only the finest... Caviar

120MB — Caviar Series
- 3.5"X1"
- WD2120
- 64K CACHE
- <14MS SEEK TIME
- 2-YR WARRANTY

$199

170MB — Caviar Series
- 3.5"X1"
- WD1170
- 32K CACHE
- <15MS SEEK TIME
- 2-YR WARRANTY

$259

212MB — Caviar Series
- 3.5"X1"
- WD2200
- 64K CACHE
- 12MS SEEK TIME
- 2-YR WARRANTY

$259

250MB — Caviar Series
- 3.5"X1"
- WD2250
- 32K CACHE
- 14MS SEEK TIME
- 2-YR WARRANTY

$279

340MB — Caviar Series
- 3.5"X1"
- WD2340
- 32K CACHE
- 12MS SEEK TIME
- 3-YR WARRANTY

$359

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE

< SF
US 101
SJ >
CENTRAL EXPWY
LAWRENCE EXPWY
KIFER RD
SAN THOMAS

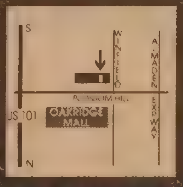
NCA SUNNYVALE
1202 KIFER RD, SUNNYVALE, CA 94086

SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

NCA SAN JOSE
962 BLOSSOM HILL RD. SAN JOSE CA 95123

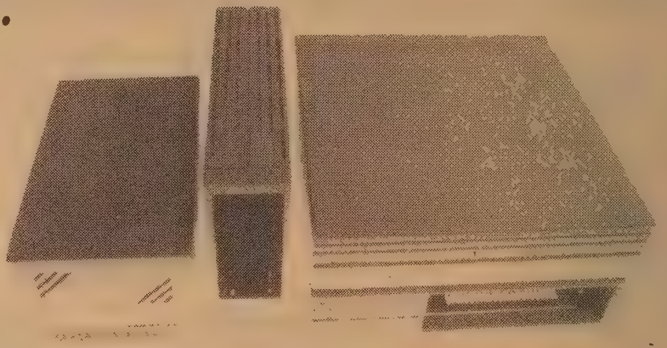


Corporate, Educational, Government, & International ACCTS: (408) 522-8672

©1993 INVERSE CORPORATION

EXTERNAL SCSI SUPER SOURCE

NCA's High Quality External SCSI Sub-Systems
for MAC, SUN, NeXT, and IBM Comp.



- High Quality External Cases.
- Sound Free Fan
- Top Manufacturers Quality SCSI Devices
- Universal Power Supply 110/220V
- 2 External Centronics Connectors
- Selectable SCSI ID.
- External Terminated/ includes a terminator
- SCSI Cable (Cent50-Cent50 or Cent50 to DB25)
- Power Cable
- Fully Tested and Approved
- Mac Formatting and Caching Software (upon request)
- External PC Kit Available

NCAs
BARRACUDA I
Half Height Enclosures
3.5" Fixed SCSI Disk Drives

SIZE	MAKE	SPEED	WARRANTY	PRICE
42Mb	Quantum	19ms	2Yr	$269
85Mb	Quantum	17ms	2Yr	$299
120Mb	Maxtor	15ms	1Yr	$319
127Mb	Quantum	17ms	2Yr	$339
170Mb	Quantum	17ms	2Yr	$359
212Mb	Conner	12ms	1Yr	$429
213Mb	Maxtor	15ms	1Yr	$399
240Mb	Qauntum	Fast	2Yr	$429
240Mb	Seagate	12ms	1Yr	$479
340Mb	Maxtor	15ms	1Yr	$679
425Mb	Seagate	10ms	1Yr	$859
425Mb	Fujitsu	12ms	5Yr	$799
525Mb	Qauntum	Fast	2Yr	$929
540Mb	Maxtor	8.5ms	2Yr	$999
520Mb	Fujitsu	12ms	5Yr	$869
535Mb	Seagate	10ms	1Yr	$939
540Mb	Conner	12ms	1Yr	$949
877Mb	Toshiba	12ms	5Yr	$1029
1.0GB	Micropolis	10ms	5Yr	$1199
1.0Gb	Seagate	10ms	5Yr	$1199
1.0Gb	HP	10ms	5Yr	$1229
1.0Gb	DEC	9ms	5Yr	$1429
1.0Gb	Fujitsu	10ms	5Yr	$1229
1.2Gb	Qauntum	12ms	5Yr	$1329
1.2Gb	Maxtor	8.5ms	3Yr	$1429
1.2Gb	Toshiba	12ms	5Yr	$1249
1.6Gb	DEC	9ms	5Yr	$1829
1.6Gb	Seagate	8ms	5Yr	$2039
2.0Gb	Seagate	10ms	5Yr	$2129
2.1Gb	Seagate	8ms	5Yr	$2739

NCAs
BARRACUDA II
Full Height Enclosures
FH Fixed SCSI Disk Drives

SIZE	MAKE	SPEED	WARRANTY	PRICE
1.0Gb	Micropolis	14ms	5Yr	$1499
1.0Gb	Seagate	14ms	1Yr	$1239
1.0Gb	Maxtor	13ms	2Yr	$1199
1.0Gb	Fujitsu	14ms	5Yr	$1299
1.3Gb	Micropolis	14ms	5Yr	$1999
1.4Gb	Micropolis	11ms	5Yr	$2099
1.4Gb	Seagate	11ms	1Yr	$1999
1.4Gb	Seagate	14ms	1Yr	$1599
1.5Gb	Maxtor	13ms	2Yr	$1499
1.7Gb	Micropolis	14ms	5Yr	$2049
1.7Gb	Fujitsu	11ms	5Yr	$2099
1.7Gb	HP	11.5ms	5Yr	$2299
1.8Gb	Seagate	14ms	5Yr	$1959
2.0Gb	Seagate	11ms	5Yr	$2129
2.0Gb	Micropolis	11ms	5Yr	$2694
2.0Gb	Fujitsu	11ms	5Yr	$2649
2.0Gb	HP	11.5ms	5Yr	$2699
2.0Gb	DEC	12ms	5Yr	$2099
2.8Gb	Micropolis	11ms	5Yr	$3899
2.8Gb	Seagate	11ms	5Yr	$3199
3.5Gb	DEC	11.5ms	5Yr	$3799

Combo SCSI Devices
Custom Configurations
Available

NCAs
BARRACUDA III
External
Non-Fixed SCSI Devices

SCSI BACKUP:

SIZE(UPTO)	MAKE	MODEL	TYPE	PRICE
250Mb	Archive	2150S	1/4"	$499
525Mb	Archive	2525S	1/4"	$749
1.3Gb	Archive	2750S	1/4"	$999
2.0Gb	Archive	4540NT	4mm	$1199
4.0Gb	Archive	4324NT	4mm	$1399
8.0Gb	Archive	4542NT	4mm	$1399
2.2Gb	Exabyte	EXB8200	8mm	$1849
2.2Gb	Exabyte	EXB8205	8mm	$1849
5.0Gb	Exabyte	EXB8500	8mm	$2849
5.0Gb	Exabyte	EXB8505	8mm	$2799
2.0Gb	HP	35470	4mm	$1249
8.0Gb	HP	35480	4mm	$1399
2.0GB	WangDat	3100	4mm	$1249
8.0Gb	WangDat	3200	4mm	$1349

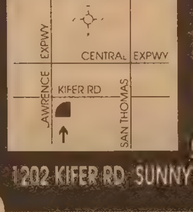
MAC Backup Software	*add $ 79*
NovaBack for PC	*add $ 99*
NovaNet for 100+users	*add$499*

EXTERNAL SCSI CD ROMs:

MAKE	MODEL	ACCESS	TRANSFER	PRICE
TOSHIBA	3401B	200ms	330KB	$579
NEC	84-1	265ms	330Kb	$589
PANASONIC	532	290ms	200Kb	$459
CHINON	535	280ms	300Kb	$499
TEXEL	5024	265ms	300Kb	$449
PIONEER	604X	300ms	612Kb	$1249

Also Available:
External OPTICAL& Removable Cartridges by:
Syquest, Bernoulli, Maxoptix, Fujitsu, Ricoh
(see Page 8,9)

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE



NCA
SUNNYVALE
1202 KIFER RD SUNNYVALE, CA 94086

SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

NCA
SAN JOSE
962 BLOSSOM HILL RD. SAN JOSE' CA 95123

S
WINFIELD
ALMADEN EXPWAY
BLOSSOM HILL
US 101
OAKRIDGE MALL

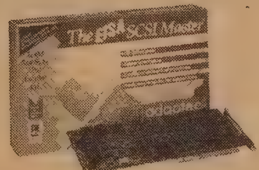
Corporate, Educational, Government, & International ACCTS: (408) 522-8672

©1993 INVERSE CORPORATION

CONTROLLER SUPER SOURCE

SCSI CONTROLLERS

adaptec



SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
1522K	16-BIT 7HD/2FD KIT	$159
1542C	BUS MASTER COMPLETE KIT	$259
1542C+	BUS MASTER KIT WITH COREL SCSI	$329
1640	MICROCHANNEL FOR PS/2, 7HD	$329
1742	EISA KIT, 32 BIT, 7HD/2FD	$429

aaa always technology

Easiest to use, PLUG & PLAY with CD Drivers

SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
IN2000	16 BIT 7HD/2FD "Easiest to use"	$179
IN2000	COREL - includes Corel SCSI	$229
AL1000	SCSI *TO* PARALLEL W/BACKUP SOFTWARE	$169

FUTURE DOMAIN

PLUG & PLAY

SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
MC600	*FOR* PS/2, CARD	$179
TMC850	8 BIT CARD W/BIOS	$59
TMC850	8 BIT W/O BIOS	$39
TMC1670	KIT 2HD/2FD	$159
TMC1680	16 BIT CARD	$169
TMC1680	16 BIT, 7HD/4FD KIT	$249
TMC7000	ISA KIT	$299

FULL LINE OF:
CABLES FOR ALL CONTROLLER
INTERNAL & EXTERNALS

PROMISE TECHNOLOGY INC.

Caching Controllers

<0.3 ms, *Fast*, *Uses Standard 256K, 1X9, 4X9 Simm Modules*

SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
DC-2040	CACHING 16-BIT SCSI-ISA W/0MB (UP TO 16M)	$239

BUSLOGIC

SCSI CONTROLLERS FOR POWER USERS

SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
BT-445S	VLB Fast SCSI-II Controller	$299
BT545KT	BusMaster Fast SCSI	$239
BTB742KT	EISA SCSI-II Kit	$349
BTB747AK	EISA Fast SCSI Kit	$399

TRANTOR®

FULL KITS W/DRIVERS FOR CD-ROM/OPTICAL... ETC.

SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
T130	8 BIT, HIGH PERF., 7HD with SCSI works	$79
T160	16 BIT, HIGH PERF.	$CALL
T228	MICROCHANNEL, 7HD	$159
T260	16-BIT, MICROCHANNEL	$CALL
T338	PARALLEL PORT to SCSI ADAPTER	$109
T348	PARALLEL PORT to SCSI PLUS	$179

SCSI Works W/TapeMate S/W for Tape Back-up $59

UltraStor

SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
14F	FD/HD (10MB/SEC) KIT	$229
24F	EISA, 64K, *Fast* (33MB/SEC)	$379
34F	VESA Local Bus Controller	$295

IDE CONTROLLERS

STANDARD IDE

IDE CONTROLLERS

MODEL	DESCRIPTION	PRICE
200	2HD/2FD CONTROLLER W/CABLES	$15
211	2HD/2FD W/2SERIAL, 1PAR, 1GAME	$25
NCL53	SMART CONT. W/BIOS EASY INSTALL	$49
222	2HD/2FD/UP TO 2.88MB WITH I/O	$39
223	2HD/2FD for VESA LOCAL BUS I/O	$79
15C	CACHING (UP TO 8MB), 2HD, 2FD **UltraStor**	$199

PROMISE TECHNOLOGY INC

Caching Controllers

.3ms *Fast* *Uses Standard SIMMS*

IDE CACHING CONTROLLERS

MODEL	DESCRIPTION	PRICE
DC-99M	CACHING w/512K, up to 8.5MB, 2HD/2FD	$119
DC-100	CACHING with I/O	$129
DC-200	CACHING (0MB, up to 16MB) 4HDs & 2FDs	$129
DC-2032	CACHING WITH I/O, 4HD/2FD/1 tape	$149
DC-4030	VESA LOCAL BUS (0MB up to 16MB) 4HDs/2FDs/1 tape	$179

gsi™

Increases Performance of IDE Drives, Floppy Drives, & doubles transfer rate on Floppy Tape Back-ups

◆ Easy Set-up ◆ High Performance ◆ Plug & Play

MODEL	DESCRIPTION	PRICE
18V	CO-EXIST, HIGH PERF. IDE card	$59
21V	2HD (WITH BIOS), 4FD (UP TO 2.88M)	$69

ORCHID

IDE VLB (VESA LOCAL BUS)...$79

QUICKPATH PORT-FOLIO 16550

13-Port Super I/O Card

4 INTERGRATED NS16550 HIGH SPEED UARTs

- ▶ 2 IDE HD
- ▶ 2 Parallel
- ▶ 4 Serial
- ▶ 4 Floppy
- ▶ 1 Game

$129

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE

< SF
US 101
SJ >
LAWRENCE EXPWY
CENTRAL EXPWY
KIFER RD
SAN THOMAS

NCA SUNNYVALE

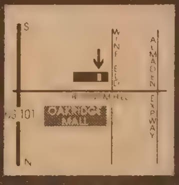
1202 KIFER RD, SUNNYVALE, CA 94086

SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

NCA SAN JOSE´



962 BLOSSOM HILL RD. SAN JOSE´ CA 95123

Corporate, Educational, Government, & International ACCTS: (408) 522-8672

©1993 INVERSE CORPORATION

SyQuest TECHNOLOGY SUPER SOURCE

- ▶ Removable Drive Cartridge, 44MB or 88MB
- ▶ Unlimited Storage
- ▶ 20ms Access speed
- ▶ SCSI Embedded
- ▶ For MAC or IBM
- ▶ 2 Year Warranty

SyQuest TECHNOLOGY

☐ 105MB

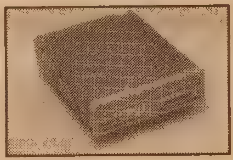
105MB, 3.5" SCSI High Performance Removable

- ▶ 14.5ms
- ▶ 3.5"X1"
- ▶ Fits in floppy bay
- ▶ Small 3.5" Cartridge 105MB

$489

External SCSI with Cart.	$689
105MB Cartridge	$99

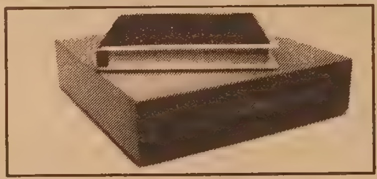
☐ BARE DRIVES



44MB SQ555	$279
88MB SQ5110	$349
88MB C SQ5110C	$419

READS & WRITES TO BOTH 44MB & 88MB CARTRIDGES

☐ EXTERNAL DRIVES



- ▶ EXTERNAL DRIVE
- ▶ CARTRIDGE
- ▶ STANDARD POWER CORD
- ▶ EXTERNAL CABLE
- ▶ INSTALLATION SOFTWARE (for Mac)

44MB SQ555	$399
88MB SQ5110	$499
88MB C SQ5110C	$589

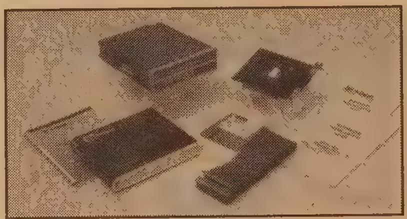
READS & WRITES TO BOTH 44MB & 88MB CARTRIDGES

☐ CARTRIDGES

CARTRIDGE	SINGLE	5-PACK
44MB	$65	$309
88MB	$99	$489

8-BIT CONTROLLER & SOFTWARE....$59

☐ INTERNAL 8-BIT KITS

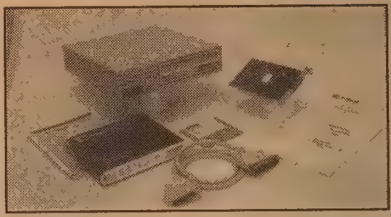


- ▶ INTERNAL SYQUEST DRIVE
- ▶ CARTRIDGE
- ▶ 8-BIT SCSI CONTROLLER
- ▶ CABLES
- ▶ INSTALLATION SOFTWARE

44MB SQ555 Int. 8-BIT	$389
88MB SQ5110 Int. 8-BIT	$489
88MB C SQ5110C 8-BIT Int. 8-Bit	$559

READS & WRITES TO BOTH 44MB & 88MB CARTRIDGES

☐ EXTERNAL 8-BIT KITS

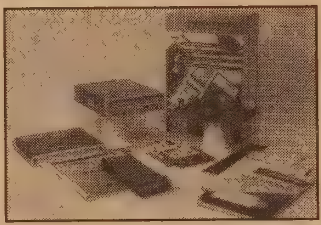


- ▶ EXTERNAL SYQUEST DRIVE
- ▶ CARTRIDGE
- ▶ 8-BIT SCSI CONTROLLER
- ▶ CABLES
- ▶ INSTALLATION SOFTWARE

44MB SQ555 Ext. 8-BIT	$459
88MB SQ5110 Ext. 8-BIT	$559
88MB C SQ5110C Ext. 8-Bit	$639

READS & WRITES TO BOTH 44MB & 88MB CARTRIDGES

☐ INTERNAL 16-BIT KITS



- ▶ INTERNAL SYQUEST DRIVE
- ▶ CARTRIDGE
- ▶ **adaptec** 1522 16-BIT SCSI CONTROLLER
- ▶ CABLES
- ▶ INSTALLATION SOFTWARE

44MB SQ555 Int.16Bit	$489
88MB SQ5110 Int.16Bit	$589
88MB C SQ5110C Int.16Bit	$649

READS & WRITES TO BOTH 44MB & 88MB CARTRIDGES

☐ EXTERNAL 16-BIT KITS

- ▶ EXTERNAL SYQUEST DRIVE
- ▶ CARTRIDGE
- ▶ **adaptec** 152216-BIT SCSI CONTROLLER
- ▶ CABLES
- ▶ INSTALLATION SOFTWARE

44MB SQ555 Ext. 16-Bit	$559
88MB SQ5110 Ext. 16-Bit	$659
88MB C SQ5110C Ext.16-Bit	$739

READS & WRITES TO BOTH 44MB & 88MB CARTRIDGES

☐ FOR ALL MACINTOSH MODELS*

Complete, Preformatted, Plug & Play External Kits.

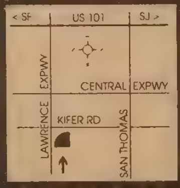
- ▶ EXTERNAL SYQUEST DRIVE
- ▶ CARTRIDGE
- ▶ CABLES (choice of 50C-Mac or 50C-50C)
- ▶ STANDARD POWER CORD
- ▶ FORMATTING SOFTWARE ($39 Value)

44MB SQ555	$399
88MB SQ5110	$499
NEW! SQ5110C	$589

READS & WRITES TO BOTH 44MB & 88MB CARTRIDGES

*Macintosh Plus or above

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE



NCA SUNNYVALE

1202 KIFER RD. SUNNYVALE, CA 94086

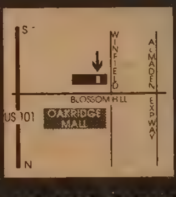
SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

Corporate, Educational, Government, & International ACCTS: (408) 522-8672

NCA SAN JOSE'



962 BLOSSOM HILL RD. SAN JOSE' CA 95123

©1993 INVERSE CORPORATION

REMOVABLE SUPER SOURCE

OPTICALS

RICOH

128Mbyte, 3.5" Rewritable Optical Disk Drive

- ▶ SCSI Optical
- ▶ 35ms Access Time
- ▶ 3.5" Media 128Mbyte
- ▶ For MAC or IBM

INTERNAL
$969

EXT. W/CART.
$1099

RICOH OPTICAL CARTRIDGES

CAPACITY	SINGLE	5-PACK
128MB	$49	$239
128-Optical Lens Cleaner	$29	$139
650MB	$145	$699

FUJITSU

128Mbyte, 3.5" Rewritable Optical Disk Drive

- ▶ M2511A
- ▶ SCSI 3.5"X1"
- ▶ Fits in floppy slot
- ▶ 30ms Speed

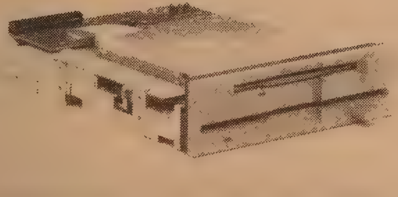
$899

REWRITABLE OPTICAL CARTRIDGES

CAPACITY	SINGLE	5-PACK
128MB	$49	$239
128-Optical Lens Clearner	$29	$139

FLOPPY DRIVES

TEAC



FLOPPY DRIVES

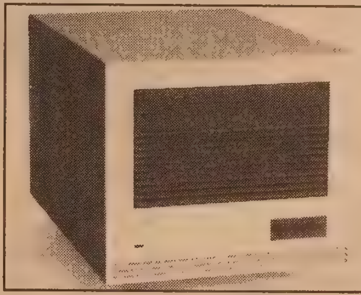
DRIVE FORMAT	PRICE
1.2MB	$57
1.44MB with 5.25" Kit	$55
1.2/1.44MB Dual Floppy	$149

TOSHIBA

2.88MB TOSHIBA Floppy Drive $68.00

Multifunction Magento-Optical Disk Drive for 1-Gbyte and 650-Mbyte Rewritable and WORM Disk Cartridges, With up to 4-Mbytes Read/Write cache

Maxoptix™



- ▶ Unlimited Data Storage
- ▶ External SCSI Subsystem
- ▶ One year factory warranty
- ▶ 25-Year life of Glass Media
- ▶ Embedded SCSI/SCSI-2
- ▶ Data Transfer of up to 13.2Mbit/Sec.
- ▶ Ultimate Back-up for NOVEL (Ready-to-Boot Backup)

1GB CART.
glass/poly
$199

TAHITI IIM - Multifunction

- ▶ 1MB Read/WriteCache
- ▶ External SCSI
- ▶ 35ms

$2799

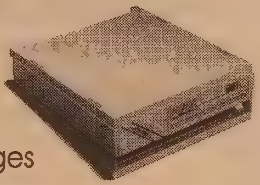
TAHITI IIM - Multifunction

- ▶ 4MB Read/Write Cache
- ▶ External SCSI
- ▶ 35ms

$2999

REMOVABLES

BERNOULLI



SCSI Interface
Removable Cartridges
18ms Access time

- ▶ 150MB, 105MB, 65MB, 35MB Capacity

BERNOULLI MULTI-DISK™ 150

PC Version

- ▶ Ext. Multi-Disk 150™
- ▶ 150MB Cartridge
- ▶ Controller & S/w

$799

MAC Transportable

- ▶ Ext. Multi-Disk 150™
- ▶ 150MB Cartridge
- ▶ MAC Software

$799

90MB BERNOULLI REMOVABLE
PC VERSION ...... $689 MAC Transportable .. $529

BERNOULLI CARTRIDGES	SINGLE	3-PACK
65MB	$79	$219
90MB	$159	$439
105MB	$109	$289
150MB	$159	$429

FLOPTICALS

IOMEGA®

21MB Floptical Drive

floptical®

MAC Version

INCLUDES:

- ▶ External 3.5" 21MB Floptical
- ▶ One Floptical Media
- ▶ Cables
- ▶ Software for MAC

$399

21MB MEDIA BY IOMEGA LASER ETCHED
SINGLE ...... $19.99 5-PACK $89.99

PC Version

INCLUDES:

- ▶ IOMEGA 21MB 3.5" Floptical
- ▶ One Floptical Media
- ▶ Host adapter SCSI 8-bit
- ▶ Cables
- ▶ Software for PC

INTERNAL
$359

EXTERNAL
$429

21MB MEDIA BY IOMEGA LASER ETCHED
SINGLE ...... $19.99 5-PACK $89.99

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE

< SF
US 101
SJ >
EXPWY
CENTRAL EXPWY
LAWRENCE
KIFER RD
SAN THOMAS

NCA
SUNNYVALE
1202 KIFER RD. SUNNYVALE. CA 94086

SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

NCA
SAN JOSE
962 BLOSSOM HILL RD. SAN JOSE' CA 95123

S
WINFIELD
ALMADEN EXPWAY
BLOSSOM HILL
US 101
OAKRIDGE MALL
N

Corporate, Educational, Government, & International ACCTS: (408) 522-8672

©1993 INVERSE CORPORATION

TAPE BACK-UP SUPER SOURCE

ARCHIVE

for IBM Compatibles, MAC, SUN, & NeXT

The BEST name in SCSI Back-up Drives

VIPER

2150		**2525**	
◆ 250MB VIPER		◆ 525MB VIPER	
◆ 6MB/MIN.		◆ 6MB/MIN.	
INT.	EXT.	INT.	EXT.
$379	$499	$649	$749

ANACONDA **2750**

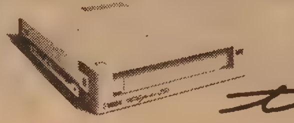
- ◆ 1.6GB
- ◆ 36MB/MIN
- ◆ SCSI-2

INT.	EXT.
$899	$999

PYTHON

4324 TURBO PYTHON		**4320NT**		**4542NT**	
◆ 4GB DAT 4mm		◆ 2.0GB DAT 4mm		◆ 4-8GB DAT 4mm	
◆ 1MB Cache Buffer		◆ 11MB/MIN.		◆ 11MB/MIN.	
INT.	EXT.	INT.	EXT.	INT.	EXT.
$1299	$1399	$1099	$1199	$1299	$1399

IOMEGA



tape 250

RUNS OFF FLOPPY PORT

- ▶ 250MB Tape Back-up
- ▶ fits Standard 3.5" floppy bay
- ▶ Reads QIC Tape and Irwin tapes
- ▶ Central Point Software
- ▶ Windows Support

Tape 250 Insider

$189

EXTERNAL TAPE 250 PARALLEL PORT $429

IOMEGA 250MB Formatted tapes
Single ....$29 **3Pack $79**

EXABYTE®

SUN compatible 8mm SCSI back up system

SCSI-8mm/4mm

CAPACITY	MODEL	SIZE	INT.	EXT.
2.2GB 8mm	EXB-8200	FH	$1549	$1849
2.2GB 8mm	EXB8205	HH	$1589	$1849
5.0GB 8mm	EXB-8500	FH	$2499	$2849
5.0GB 8mm	EXB-8505	HH	$2499	$2799
2.0GB 4mm	EXB-4200	3.5"	$999	$1149
5.0Gb 4mm	EXB-4200c	3.5"	$1099	$1249

HEWLETT PACKARD

Setting the Standards

SCSI 4mm DAT

CAPACITY	MODEL	INT.	EXT.
2.0GB	35470 DAT	$1099	$1249
4-8GB	35480 DAT	$1149	$1399

WangDAT™

SCSI QIC-Format

CAPACITY	MODEL/TYPE	INT.	EXT.
250MB	5150 1/4" SCSI	$469	$569
525MB	5525 1/4" SCSI	$639	$749

SCSI 4mm DAT

CAPACITY	MODEL/TYPE	INT.	EXT.
2.0GB	3100 DAT	$1099	$1249
4-8GB	3200 DAT	$1199	$1349

TAPE CARTRIDGES

see page 18 of this Guide

COLORADO MEMORY SYSTEMS INC.

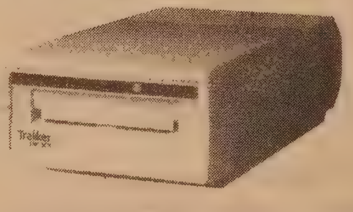
USES DC2120 TAPES

RUNS OFF FLOPPY PORT

CAPACITY	MODEL/TYPE	INT.
120MB	DJ10/IBM COMPATIBLE	$135
120MB	DJ10 with Central Point Package	$159
250MB	DJ20/IBM COMPATIBLE	$189

EXTERNAL KIT WITH CARD AND CABLES KE-10	$109
EXTERNAL TAPE PORT AB-11	$39
FC-10 TAPE CONTROLLER, WITH CABLES	$89
FC-15 HIGH PERFORMANCE 16-BIT CONTROLLER	$189

Trakker™



PARALLEL PRINTER PORT EXTERNAL TAPE BACK-UP SYSTEMS

RUNS OFF PARALLEL PRINTER PORT

CAPACITY	MODEL/TYPE	EXT.
120MB	TRAKKER 120	$349
250MB	TRAKKER 250	$389

IRWIN®

An Archive® Company

RUNS OFF FLOPPY PORT

CAPACITY	MODEL/TYPE	INT.
120MB	ARC120	$135
250MB	ARC250	$189

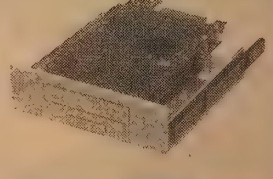
PARALLEL PRINTER PORT ***EXTERNAL*** TAPE BACK-UP

RUNS OFF PARALLEL PRINTER PORT

CAPACITY	MODEL/TYPE	EXT.
120MB	AccuTRAK 120	$379
250MB	AccutRAK 250	$439

SUMMIT™

MEMORY SYSTEMS INC.



WITH CENTRAL POINT BACKUP SOFTWARE

RUNS OFF FLOPPY PORT

CAPACITY	MODEL/TYPE	INT.
250MB	SE-250	$189

BACKUP SOFTWARE

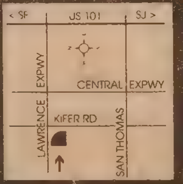
DESCRIPTION	PRICE
Sytos Plus™ for Adaptec	$99

NovaStor

BEST BACK UP SOFTWARE

DESCRIPTION	PRICE
NovaBack for DOS	$99
NovaBack for OS/2	$149
NovaNet-Server Based Software (up to 100 users)	$499

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE



NCA
SUNNYVALE
1202 KIFER RD, SUNNYVALE, CA 94086

SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

NCA
SAN JOSE'
962 BLOSSOM HILL RD. SAN JOSE' CA 95123

S
WINFIELD
ALMADEN EXPWAY
BLOSSOM HILL
US 101
OAKRIDGE MALL
N

Corporate, Educational, Government, & International ACCTS: (408) 522-8672

©1993 INVERSE CORPORATION

MULTIMEDIA SYSTEM SUPER SOURCE

NCA Quality Custom Built Multimedia Super Systems

Just Plug and Play...

Top Name Manufacturers
Pre-Installed Software
Attractive Design
Fully Tested and Approved
Upgrades are Available
1 Year Parts, 5 Year Labor Warranty.

Multimedia PC

Powerful Begining...

ALEXIS MPC Level I

486DLC-33MHz

Medium Tower Multimedia PowerSYSTEM

486DLC-33Mhz Processor
128K Cache Static Ram
4Mb Memory
170Mb Quantum fast Hard Drive
Medium Tower with 230W UL.
2-serial, 1-Parallel, 1 Game Ports
IDE controller 2FD/2HD
SVGA Card with 1MB
1.2M and 1.44M Floppies
Mitsumi Quality 101 Keyboard
14" SVGA Monitor Non-Interlaced
Mitsumi Fast 350ms CD ROM
Sound Blaster Pro Sound Card
Mouse
Labtec Aplified Speakers
DOS 6.0 and Windows 3.1
7 CD ROM Titles

$1699

Power-Users Machine:

ALEXIS MPC Level II

486DX-33MHz

VESA LOCAL BUS Multimedia PowerSYSTEM

Intel 486DX-33Mhz Processor
CPU cooler with fan
Orchid HighQuality Motherboard with 2-32 bit VESA Slots
256K Cache Static Ram
8Mb Memory
Quantum 240Mb fast Hard Drive
2-serial, 1-Parallel, 1 Game Ports
Diamond Stealth 24 VESA Video Accelerator Card
Orchid 32-Bit VESA IDE Card
1.2M and 1.44M Floppies
Mitsumi Quality 101 Keyboard
15" SVGA Monitor 1280X1024
NEC 84-1 SCSI FAST CD ROM
MediaVision ProAudio 16 Card
Medium Tower with 230W UL.
Microsoft Mouse
Labtec 550 Aplified Speakers
DOS 6.0 and Windows 3.1
7 CD ROM Titles

intel inside

$2999

Dream Machine:

ALEXIS MPC Level III

486DX2-66MHz

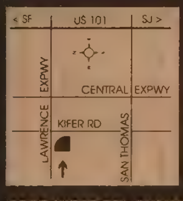
VESA LOCAL BUS Multimedia PowerSYSTEM

Intel 486DX2-66Mhz Processor
CPU cooler with fan
Orchid HighQuality Motherboard with 2-32 bit VESA Slots
256K Cache Static Ram
8Mb Memory
Quantum 525Mb fast Hard Drive
2-serial, 1-Parallel, 1 Game Ports
Diamond Stealth 24 VESA Video Accelerator Card
Adaptec 1542C BusMaster SCSI Controller
1.2M and 1.44M Floppies
Mitsumi Quality 101 Keyboard
SONY 1730 17" SVGA Monitor .26
Toshiba 3401 200ms SCSI CD ROM
Sound Blaster 16 ASP Soundcard
Full Tower with 250W UL.
Microsoft Mouse II.
Labtec 550 Aplified Speakers
DOS 6.0 and Windows 3.1
10 CD ROM Titles

intel inside

$4799

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE



NCA SUNNYVALE
1202 KIFER RD, SUNNYVALE, CA 94086

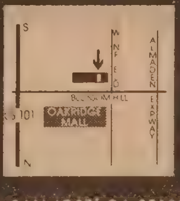
SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

Corporate, Educational, Government, & International ACCTS: (408) 522-8672

NCA SAN JOSE
962 BLOSSOM HILL RD, SAN JOSE CA 95123



©1993 INVERSE CORPORATION

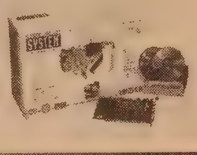
MULTIMEDIA SUPER SOURCE

MEDIA VISION

PRO 16 MULTIMEDIA SYSTEM

The Highest Performance Multimedia Upgrade Kit Available today, Includes:

- ▶ Pro Audio Spectrum 16 Sound System
- ▶ Doubles Speed SCSI Multimedia CD-ROM Drive
- ▶ Highest Rated CD Software
  - Where in the world Carmen Sandiego?™
  - Compton's Multimedia Encyclopedia
  - Lotus 123, • Kings Quest V,
  - MacroMind, • Nautilus Multimedia



$829

PRO AUDIO SPECTRUM 16

- ▶ True Stereo Sound
- ▶ Advance 20 Voice Stereo Synthesizer
- ▶ MIDI Interface
- ▶ Software Includes:
  - Pocket Recorder, • MIDI Sequencer
  - Software Controller Mixer
  - TrakBlaster Pro, • Monologue
  - Music & Sound Effect Library
  - Windows Drivers

$149

SUBSYSTEM CDPC XL

Fully Integrated Multimedia Component System

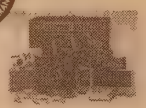
- ▶ External NEC Multispeed, 280ms, 300Kb/sec100W Power
- ▶ Amplifier, 20W per side & 60W of Power with
- ▶ Multimedia Source Analog Mixer
- ▶ MIDI Interface
- ▶ 4-Operator FM Synthesis
- ▶ Microphone
- ▶ Top CD ROM Bundle
  - Media vision Pocket Tools
  - Where in the world is Carmen Sandiego?™
  - Compton's Multimedia Encyclopedia
  - MacroMind Action

$1079

SUBSYSTEM CD PC . . $929

FUSION CD16

- ▶ ProAudio Spectrum 16
- ▶ Laptec CS-550 Speakers
- ▶ Sony CD-ROM (internal) NEC CD-ROM (external)
- ▶ Best Selection Software
  - Pocket Recorder
  - Pocket Mixer
  - Where in the World is Carmen Sandiego?
  - Wing Commander II
  - Optima Underworld
  - Conpton's Multimedia Encyclopedia



INTERNAL ..$479
EXTERNAL ..$509

PROMOVIE SPECTRUM

- ▶ Display Live Video In a Movable Window *up to 30 frames per second*
- ▶ Capture Video Sequence
- ▶ Control Video Sources With Your Keyboard or Mouse
- ▶ No Hardware limitations
- ▶ S-Video & NTSC Inputs & Editing

Software Includes:
- Macromedia's Action! 2.5
- Microsoft Video for Windows
- AVI to Quicktime converter
- DOS plaer and Recorder

$279

PORTABLE PC SOUND AUDIOPORT	**$139**
MIDI MATE (EXTERNAL MIDI CONNECTOR BOX)	**$89**

CREATIVE

CREATIVE LABS, INC

SOUND BLASTER CD-ROM UPGRADE KIT

- ▶ CD-ROM 390ms
- ▶ Win.3.1, Bookshelf, Sherlock Holmes, Creative Sounds

INTERNAL ...$359

SOUND BLASTER MULTIMEDIA UPGRADE KIT

- ▶ Sound Blaster Pro
- ▶ MIDI Adapter
- ▶ CD-ROM 390ms
- ▶ Win, 3.1, Bookshelf, Works, Action Star, Tempra, Sherlock Holmes, Creative Sounds
- ▶ Speakers

INTERNAL ...$519 EXTERNAL ...$589

SOUND BLASTER EDUTAINMENT 16 CD UPGRADE KIT

- ▶ Sound Blaster 16
- ▶ 390ms CD-ROM
- ▶ Multimedia Encyclopedia, Animals, San Diego Deluxe, Just Grandma & Me, Sherlock Holmes, Monkey Island, Secret Weapons & loom.
- ▶ Speakers

INTERNAL ...$549

SOUND BLASTER DISCOVERY 8 CD UPGRADE KIT

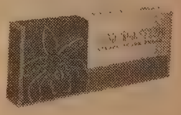
- ▶ Sound Blaster
- ▶ 390ms CD-ROM
- ▶ Multimedia Encyclopedia, Animals, & lemmings

INTERNAL ...$399

Sound BLASTER

Sound Blaster	$79
Sound Blaster Pro Deluxe	$139
Sound Blaster 16 ASP	$219
Video Blaster	$329
Wave Blaster	$Call

ORCHID SOUND PRODUCER PRO



- ▶ Stereo Sound Card
  - On Board Interface for CD-ROM Drive
  - On Board SCSI Controllers for CD-ROM
- ▶ Speakers & Microphones
- ▶ 9 Software Packages

$109

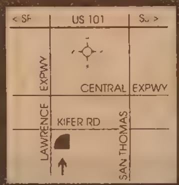
LOGITECH SOUND MAN 16 $148

AUDIO CABLES

Complete Selection for all popular CD ROMs & Sound Cards

$9.99

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE



NCA SUNNYVALE

1202 KIFER RD, SUNNYVALE, CA 94086

SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

NCA SAN JOSE

S
WINFIELD
ALMADEN EXPWAY
BLOSSOM HILL
US 101
OAKRIDGE MALL
N

962 BLOSSOM HILL RD. SAN JOSE CA 95123

Corporate, Educational, Government, & International ACCTS: (408) 522-8672

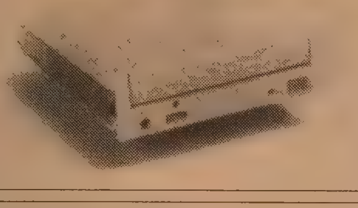
©1993 INVERSE CORPORATION

MULTIMEDIA SUPER SOURCE

TOSHIBA

XM-3401B

Fastest SCSI CD ROM Ever!!



- 200ms, 330KB/SEC.
- SCSI CD-ROM
- MULTI-SPIN/MULTI-SPEED
- 256K CACHE

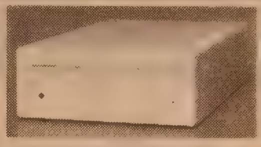
INTERNAL $469

EXTERNAL $579

CHINON

CD-535

Top of the line SCSI-II CD ROM



- SCSI-II CD ROM
- Multisession Photo CD
- XA Compatibles
- 256K Buffer
- 280ms
- Double Doors
- Sealed Mechanism

INTERNAL UNIT	INTERNAL KIT (with card & software)	EXTERNAL KIT (for MAC & IBM Comp.)
$389	$429	$499

Panasonic

CD ROMS

CR522
- Includes Audio Card & Controller
- 380ms
- 64K Cache

$219

CR522 Multimedia Kit 6CD's
- Includes Audio Card & Controller
- 380ms
- 64K Cache
  Includes 6 Top Rated CDs

$299

CR532 CD ROM & Card
- SCSI CD ROM
- 290ms
- 128K Cache (up to 256K)

$349

MITSUMI

- MULTIMEDIA CD ROM
- INCLUDES 16 BIT CARD
- MPC READY / 350ms

$189

KIT with Jukebox CD...............$219

Caddy	$8.99
HIGH QUALITY LAPTEC SPEAKERS:	
Amplified Computer Speakers 100	$16.99
Amplified Computer Speakers 150	$18.99
Amplified Computer Speakers 550	$27.99

TEXEL

- SCSI CD
- *FAST* 265ms
- Multi-Spin
- DM-3024
- INTERNAL W/ CADDY

$349

- DM-5024
- EXTERNAL W/CADDY

$449

Trantor T130 Controller with SCSI works.............$79

NEC

NEW!

CDR-84-1

Next Generation

- MultiSpeed
- MultiSpin
- MultiSession
- New Higher Performance

$479

PIONEER®

High Speed CD-ROM MiniChanger, featuring QUADRASPIN™, 612Kbyte/sec

- External SCSI/SCSI-2 Subsystem
- 6 CD ROM Magazine
- Software for MAC or IBM
- 300ms
- FAST 612KBytes/Sec

DRM-604X

$1249

SONY

- 31A CD ROM
- CONTROLLER CARD

$219

- 31A CD ROM
- CONTROLLER CARD
- 5 CD ROM TITLES

$319

EXCLUSIVELY TO OUR CD ROM CUSTOMERS

A full Library of fine CD Titles

For ...

MAC & PC

THE SOFTWARE TOOLWORKS

CD ROM TITLES

HUGE SELECTION

CHOOSE FROM ...

- Games
- Adult
- Entertainments
- Shareware
- Reference
- Education
- Programs
- Macintosh Titles

STARTING AT ...$14^{99}

OVER 20 TITLES AT THIS PRICE

MULTIMEDIA.VIDEO

MEDIA VISION

ProMovie Spectrum

- Display live video in a movable window up to 30 frames/sec
- Capture video sequence
- Control Video Sources with your keyboard or Mouse
- No hardware limitations
- Editing
- Software Includes:
  Macromedia's Action! 2.5,
  Microsoft Video for Windows
  AVI to Quicktime converter,
  DOS player and recorder

$279

CREATIVE

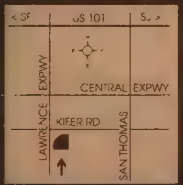
CREATIVE LABS, INC

VIDEO BLASTER

- Display Full-motion video in a movable, scalable window
- Software programmable volume controls
- Bundled software includes:
  still image JPEG compression, Video for Windows,
  Macromdeia™ Action! Mathematica Tempra™,
  and MMPlay for integrating live video
  with grpahic, animation and sound

$329

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE



NCA SUNNYVALE

1202 KIFER RD. SUNNYVALE, CA 94086

SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

NCA SAN JOSE´

962 BLOSSOM HILL RD. SAN JOSE´ CA 95123

S
WINFIELD
ALMADEN EXPWAY
US 101
OAKRIDGE MALL
N

Corporate, Educational, Government, & International ACCTS: (408) 522-8672

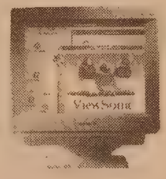
©1993 INVERSE CORPORATION

VIDEO SUPER SOURCE

MONITORS

ViewSonic®

State of the Art



ViewSonic-6FS 15" .28dpi $549
72Hz, 1024X768, Non-Interlaced, Non-Glare

ViewSonic-7 17" .28dpi $999
76Hz, 1280X1024, Non-Interlaced, Miroprocessor-Controls

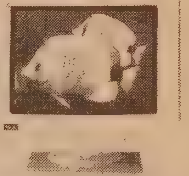
Introducing The New Generation

ViewSonic-15 15" .28dpi $679
ViewMatch Color Monitor, 1280X1024, Non-Interlaced
76Hz at 1024X768, Flat Screen Screen

ViewSonic-17 17" .28dpi $1249
76Hz at 1280X1024, Flat Square Screen

ViewSonic-20 20" .28pdi $1949
1600X1280, Non-Interlaced, Dual Page Display

MGC



14" SVGA 1024X768 Non-Interlaced ...$309
XGA High-Frequency, .28dpi

15" SVGA Flat Screen Non-Interlaced.$399
XGA High Frequency, .28dpi, up 1280X1024 Non-Internal

14" SVGA Black 1024X768 ....$289

SONY

1730 SuperFine Pitch Trinitron .25dpi ..$1039

NEC

SEE OUR
MULTIMEDIA SELECTION
CD ROMS
SOUND CARDS
VIDEO CARDS
Super SYSTEMS

SAMSUNG
Electronics

High Quality Monitors for Less

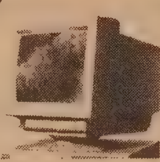
SyncMaster-15C 15" MulitSycn $459
.28dpi, Flicker-Free, Microprocessor Controls flat screen

SyncMaster-5 17" MultiSync High-freq. ...$799
.28dpi, 1024X768, Non-Interlaced

SyncMaster-5C 17" 1280X1024 .26dpi .$949
Flicker-Free, MulitSync

MiTAC

Affordable Quality Monitors



14" PaperWhite VGA	**$109**
14" SVGA Non-Interlaced 1024X768, .28dpi	**$269**
15" SVGA Non-Interlaced 1024X768, .28dpi	**$379**
17" SVGA Non-Interlaced 1024X768, .31dpi	**$499**

NANAO®

PROFESSIONAL VIDEO DISPLAY

F340iw 15" Non-Int. flat screen $729
F550i 17" Non-Int. 1280X1024, .28dpi $1049
F550iw 17" Non-Int. 1280X1024, .28dpi...........$1189
T560i 17" Non-Int. 1280X1024, .25dpi $1699
T660i 20" Trinotron Tube 1280X1024, .31dpi .$2499
T750i 21" Non-Int. 1280X1024, .31dpi $2089
6500 21" Grayscale, 1280X1024 at 75Hz..........$1299

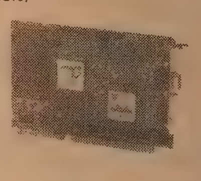
SVGA VIDEO CARDS

SVGA 256K Video Card............$\$29^{99}$
SVGA 512MB 1024X768 ....$\$44^{99}$
SVGA 1024K 1024X768 ....$\$59^{99}$
SVGA VESA Local Bus.............$\$79^{99}$

VIDEO CARDS

ATI TECHNOLOGIES INC

Graphic Ultra+
- Accellerated 1024X768 at 65,000 Colors, True 16.7M Colors at 800X600
- Multimedia Video Accelerator



1MB Version	2MB Version
$249	**$319**

Graphic Ultra Pro
- Accellerated 1024X768 at 256 Colors, up to 74Hz, Non-Interlaced
- 2MB RAM

$379

Graphics Ultra 1MB w/mouse...$229
VESA LOCAL BUS CARDS:
ATI-VLB VESA 1MB $299
ATI-VLB VESA 2MB $389

DIAMOND

Stealth 1280X1024 1MB (upgradable) $\$179^{99}$
SpeedStar 24X 1MB 1024X768 24bit ..$\$169^{99}$
SpeedStar Pro 1MB 16Million Colors $\$149^{99}$
SpeedStar Pro VESA Local Bus ....$\$169^{99}$
Stealth 24 VESA 1280X1024 ....$\$189^{99}$
Viper VLB 2MB VRAM Accelerator ..$\$409^{99}$

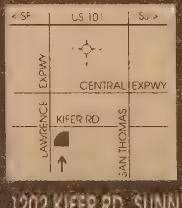
ORCHID

FAHRENHEIT VA
VOICE ANNOTATION

High End Video Solutions

ProDesigner IIs 1MB Hi-Color ....$\$139^{99}$
Fahrenheit 1280Plus...........................$\$164^{99}$
Fahrenheit 1280Plus VESA Local Bus.$\$199^{99}$
Fahrenheit VA (Voice Annotation)....$\$219^{99}$
Fahrenheit VA/VLB VESA 24-Bit ....$\$209^{99}$
P9000/VLB VESA Graphic Accelarator$\$369^{99}$

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE

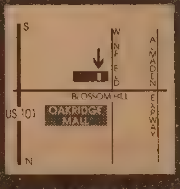


NCA
SUNNYVALE
1202 KIFER RD, SUNNYVALE, CA 94086

SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610



NCA
SAN JOSE
962 BLOSSOM HILL RD. SAN JOSE' CA 95123

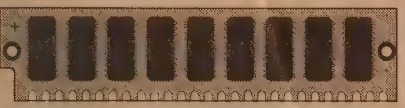
Corporate, Educational, Government, & International ACCTS: (408) 522-8672

©1993 INVERSE CORPORATION

MEMORY SUPER SOURCE

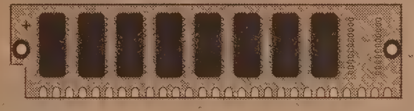
MEMORY SIMMS

IBM COMPATIBLE



256X9	80ns	3Chip	$Call
1MBX9	80ns	3Chip	$Call
1MBX9	80ns	9Chip	$Call
1MBX9	70ns	3Chip	$Call
1MBX9	70ns	9Chip	$Call
1MBX9	60ns	3Chip	$Call
1MBX9	60ns	9Chip	$Call
4MBX9	80ns	9Chip	$Call
4MBX9	70ns	9Chip	$Call
4MBX9	60ns	9Chip	$Call
16MBX9	70ns	9Chip	$Call

Macintosh



1MBX8	80ns	2Chip	$Call
1MBX8	80ns	8Chip	$Call
1MBX8	70ns	2Chip	$Call
1MBX8	70ns	8Chip	$Call
2MBX8	80ns	2Chip	$Call
4MBX8	80ns	8Chip	$Call9
4MBX8	70ns	8Chip	$Call
4MBX8	60ns	8Chip	$Call
4MBX8	80ns	II-FX	$Call
16MBX8	70ns	8Chip	$Call

DIPPS

256X1 100ns	$1.79
256X1 80ns	$1.59
256X1 70ns	$1.89
256X4 70ns	***$4.89***
64X4 100ns	$3.39
64X4 80ns	$2.29
1X4 80ns	$16.99
1MBX1 100ns	$3.75
1MBX1 80ns	$3.39
1MBX1 70ns	$4.29
1MBX1 60ns	$4.39

CACHE MEMORY

32X8-25	$6.50
32X8-20	$8.50
32X8-15	$17.00
32X8-12	$39.00
64X4-25	$8.50
64X4-20	$9.00
64X4-15	$18.00
64X1-20	$5.75
64X1-15	$6.75
8X8-25	$3.75
8X8-20	$3.25
8X8-15	$4.75
16X4-20	$6.25
16X4-25	$4.75
16X4-15	$8.25
128X8-25	$41.50
128X8-20	$CALL
128X8-15	$CALL

32-Bit for Quadra 800, Centris, & LCIII

2MB Module	$Call
4MB Module	$Call
8MB Module	$Call
16MB Module	$Call

MAC MEMORY INSTALLATION

2-Hr Installation **$15**
(excluding Powerbooks)

POWERBOOK MEMORY

6MB Module (160/180)	$259
8MB Module (160/180)	$339
10MB Module (160/180)	$439
6MB Modules (140/145/170)	$219

72-PIN SIMMS

2MB 604-70ns	$CALL
4MB 1X36-70ns	$CALL
8MB 2X36-70ns	$CALL
16MB 4X36 70ns	$CALL

LASER PRINTER MEMORY

HEWLETT PACKARD

HP laser Jet 4 & 4M

4MB	$Call
8MB	$Call

HP Laser Jet IIP, III, IIID

2MB Board (up to 4MB)	$Call
4MB Board	$Call

HP IIIsi

4MB Module	$Call
8MB Module	$Call

OTHER LASER PRINTER

Panasonic p4410/4430 printers
Compaq PageMRQ Printers
EPSON Action II Printers
OKI 400 printers
NEC printers

MEMORY SIPPS

1X9/70	$38.99
1X9/60	$41.99

INTEL CPUs

486DX-33MHz	$329
486DX-50MHz	$449
486DX/2-50MHz	$429
486DX/2-66MHz	$539

MATH CO-PROCESSORS

CHIPS AND TECHNOLOGIES

Co-processor for 386/ 16, 20, 25, & 33MHz **$59**

intel.

80387SX-ALL SPEEDS	$79
80387DX-16, 20,25,33	$79
Overdrive Processor	$Call

IIT INTEGRATED INFORMATION TECHNOLOGY

3C87SX-16, 20, 25	$69
3C87SX-33	$79
3C87-20, 25, 33	$79
3C87-40	$89

Cyrix ADVANCING THE STANDARDS

83S87SX-16, 20, 25	$69
83S87SX-33	$79
83D87-16, 20, 25, 33	$79
83D87-40	$89

WEITEK

4167-25	$359
4167-33	$629

MOTHERBOARDS

Elite UM 486V

VESA - Local Bus Motherboard

- 8 16-Bit Slots
- 2 32-Bit VESA Slots
- 256K Cache
- ZIF 238-pin Socket
- UMC Chip Set
- AMI BIOS
- Jumper Adjustable speed

486DX33	486DX50
$489	$609
486DX-2/50	**486DX-2/66**
$589	$699

486SLC2 50MHz

VESA Motherboard by alaris **$359**
Manufactured by IBM®

ORCHID MOTHERBOARDS

High Quality VESA Local Bus (no CPU)

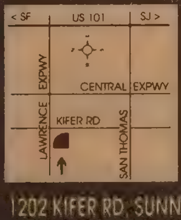
486DX-33 VLB 256K Cache	$\$199^{99}$
486DX-50 VLB 256K Cache	$\$209^{99}$
486DX-66 VLB 256K Cahce	$\$199^{99}$

High Quality,
High performance

MOTHERBOARDS

386SX-33MHz	$109
386DX-40MHz w/CPU, 64K Cache	$169
386DX-40MHz w/CPU, 128K Cache	$189
386DX-40MHz w/CPU, 256K Cache	$199

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE



NCA SUNNYVALE
1202 KIFER RD, SUNNYVALE, CA 94086

SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

Corporate, Educational, Government, & International ACCTS: (408) 522-8672

S
N
WINFIELD
ALMADEN EXPWY
BLOSSOM HILL
US 101
OAKRIDGE MALL

NCA SAN JOSE
962 BLOSSOM HILL RD. SAN JOSE CA 95123

©1993 INVERSE CORPORATION

FAX/MODEM SUPER SOURCE

USRobotics®

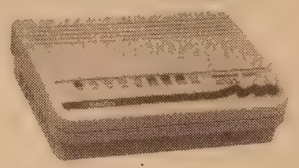
The Intelligent Choice in Data Communications

FIVE YEAR WARRANTY

HIGH SPEED MODEMS

SPORTSTER 14,400 V.32/V.42

WITH WINFAX LITE SOFTWARE



MADE IN THE USA

INTERNAL
$195

EXTERNAL
$199

MAC&FAX SPORTSTER
EXTERNAL 14.4 FAX/MODEM
WITH FAX*stf*™ software for MAC $238

FEATURING COURIER

HIGH SPEED MODEMS

COURIER HST™ with ASL
DUAL STANDARD

- 16.8K, 14.4K, 12.0K, 9.6K to 300bps
- CCITT V.42/MNP2-4 error Control
- V.42 *bis* / MNP 5 DATA Compression

EXTERNAL
$749

MADE IN USA P.C. LOGIC™ Fax MODEM

14,400bps FAX/MODEM

MNP 5 / V.42bis

- With Quick Link II FAX/Communication for DOS

INTERNAL
$179

- With Windows Ver. Software and Prodigy Kit

EXTERNAL
$189

- 2400pbs FAX Modem (9600bps FAX send&Receive) with Windows Ver. Software & Prodigy Kit

INTERNAL
$69

Hayes®

EXTERNAL 2400 BAUD MODEM
WITH SOFTWARE

$39

WHAT EVERY 14.4 FAX/MODEM NEEDS

QUICKPATH

PORT FOLIO 16550

4 SERIAL PORTS (4 UARTS 16550)
2 PARALLEL PORTS
4 FLOPPY PORTS
2 IDE
1 GAME PORT

$129

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE

< SF
US 101
SJ >
EXPWY
CENTRAL EXPWY
KIFER RD
LAWRENCE
SAN THOMAS

NCA SUNNYVALE
1202 KIFER RD, SUNNYVALE, CA 94086

SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

NCA SAN JOSE
962 BLOSSOM HILL RD. SAN JOSE CA 95123

S
WINFIELD
ALMADEN EXPWAY
BLOSSOM HILL
US 101
OAKRIDGE MALL
N

Corporate, Educational, Government, & International ACCTS: (408) 522-8672

©1993 [illegible] CORPORATION

FAX/MODEM SUPER SOURCE

COMPUTER PERIPHERALS, INC.™

5 YEAR LIMITED WARRANTY

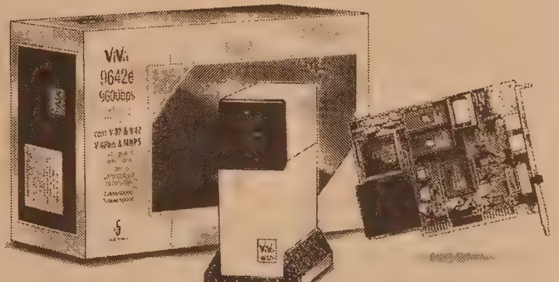
ViVa 14.4/Fax

14.4/FAX

14,400 bps V.32/V.42 bis Modem
with 14,400 bps SEND/REC. FAX

with DOS and WINDOWS Ver. Communication Software

- 100% Hayes Enhanced AT Command Set Compatible
- V.32bis (57,600 bps Maximum throughput speed
- V.42bis and MNP 5 data compression
- V.42 and MNP 2-4 error Correction
- Auto-baud negotiation
- Fax from with any DOS application
- WYSIWYF (what you see is what you fax)
- Auto COM Port detection
- Near laser printer quality output with PCL4 support



INTERNAL	EXTERNAL	VIVA 14.4 | FAX | MAC
$189	**$205**	**$219**
		Includes: STF Software

ViVa 14.4 Pocket FAX-MODEM

ViVa 14.4P

- ▸ 14,400 bps Pocket size modem
- ▸ with 14,400 bps SEND/REC FAX
- ▸ includes: WINFAX & Quick Link II Communications

$289

ViVa MULTI-MEDIA

Maestro 16

16 BIT STEREO SOUND CARD

- ▸ 44KHz Record/Playback, SCSI Port, and MIDI Port
- ▸ Software included
  - •Stereo Wave Editor
  - •Audio Mixer
  - • CD Audio Player
  - • MIDI Player
  - •Text To Speech
  - • Sound Clips (WAV & MIDI)

$179

ViVa MULTI-MEDIA

Maestro 16 VR

16 BIT STEREO SOUND/VOICE CARD

- ▸ Includes Above Software List
- ▸ with Voice Recognition Software

$249

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE

< SF
US 101
SJ >
EXPWY
CENTRAL EXPWY
KIFER RD
LAWRENCE
SAN THOMAS

NCA SUNNYVALE

1202 KIFER RD. SUNNYVALE CA 94086

SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

Corporate, Educational, Government, & International ACCTS: (408) 522-8672

NCA SAN JOSE

S
WINFIELD
ALMADEN EXPWY
BLOSSOM HILL
US 101
OAKRIDGE MALL
N

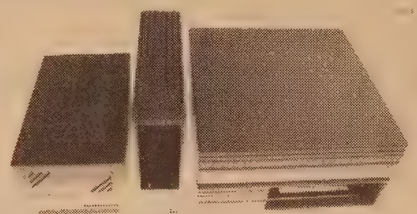
962 BLOSSOM HILL RD. SAN JOSE CA 95123

©1993 INVERSE CORPORATION

ACCESSORIES SUPER SOURCE

CASES

EXTERNAL SCSI DRIVE CASES



- High Quality Metal Cases
- 2 Centronics Output
- Noise Free Fan
- External SCSI ID Switch
- External SCSI Cable (50C-50C or 50C-25C)
- Power Cable
- Hardware

for 3.5" or 5.25" Half Height	**$99**
for Full Height or 2 HH	**$139**
for Full Height or 2 HH (NCA)	**$199**
for 2 Full Height 200W with 5fans	**$279**
for 4 Full Height With Panal	**$499**

COMPUTER CASES

HIGH QUALITY CASES
UL APPROVED POWER SUPPLY
GREAT STYLE SELECTION

NCA SERIES™

DESCRIPTION	PRICE
MINI-TOWER , 230W	$79.99
MED-TOWER , 230W	$99.99
FULL-TOWER , 250W	$139.99

BETA SERIES™

DESCRIPTION	PRICE
MINI-TOWER P-105, 230W	$69.99
MED-TOWER P-203, 230W	$99.99
FULL-TOWER P-306, 250W	$119.99

SYNERGY™

DESCRIPTION	PRICE
MINI-TOWER 16-705	$69.99
MED-TOWER 16-400	$99.99
FULL-TOWER 32-380	$119.99
FULL-TOWER W/DOOR 32-190	$129.99

EVER™ SERIES

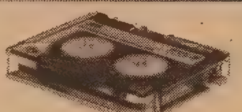
DESCRIPTION	PRICE
MINI-TOWER EC373	$84.99
MED-TOWER 200W, W/DOOR EC467	$119.99
FULL-TOWER EC662	$139.99

EVER™ BLACK SERIES

DESCRIPTION	PRICE
MED-TOWER BLACK 200W	$109.99
FULL-TOWER BLACK	$149.99

MEDIA

TAPES & CARTRIDGES



DESCRIPTION	SINGLE	5-PACK
2120 (120/250MB)		
SONY DC2120 120/250MB	18.95	89.00
3M 2120F FORMATTED XMAT	18.00	89.00
MAXELL DC2120 UNFORMATTED	16.99	79.00
MAXELL DC2120 FORMATTED Q80	19.99	89.99
6000(1/4" TAPES)		
SONY DC6150 150MB	22.95	107.50
SONY DC6250 250MB	28.95	137.50
SONY DC6525 525MB	33.95	155.50
DAT 4mm 90meters 2.0Gb		
SONY 90M 2GB	17.95	75.00
TDK DC4-90	13.99	65.00
DAT 8mm 112meters		
EXABYTE UP TO 5.0GB TAPES	18.00	89.00
TDK DC8-112	9.99	45.00
FLOPPY DISKS		
SONY 2.88M DISKS	10PACK ONLY $62.50	
BULK 1.44M 3.5" FORMATTED	.68¢	25PACK $17.99
BULK 1.2M 5.25" FORMATTED	.39¢	25PACK $9.99
REMOVABLE DISKS		
SYQUEST 44MB	$65.00	$309
SYQUEST 88MB	$99	$489
SYQUEST 105MB 3.5"	$99	$489
BERNOULLI	SEE pg. 9	
RICOH 128MB	$49	239
SONY 128MB OPTICAL	$42	199
MAXOPTIX 1.0GB GLASS OR POLY	$199	979
RICOH 650MB	$145	$699

POINTING DEVICES

LOGITECH

HIGHEST QUALITY POINTING DEVICES

NAME	PRICE
FIRST-MOUSE	$36.95
MOUSE-MAN	$59.99
TRACK-II trackman II	$84.95

Microsoft

Microsoft Mouse	$49
Microsoft Mouse II	$69

CORDLESS OPTICAL MOUSE....................$29

CABLES

HARD DRIVE EXTERNAL CABLES

DESCRIPTION	PRICE
CENTRONICS TO SCSI-II	$39.99
CENTRONICS TO MAC 25-PIN	$7.99
CENTRONICS 50 TO CENTRONICS 50, 6FT	$12.99
CENTRONICS 50 TO CENTRONICS 50, 3FT	$9.99
CENTRONICS TO DB-50	$39.99
DB-50 TO SCSI-II	$39.99
DB-50 TO DB-50	$39.99
SCSI-II TO SCSI-II	$39.99

HARD DRIVE INTERNAL CABLES

DESCRIPTION	PRICE
SCSI 50-PIN RIBBON 3 CONNECTOR	$5.99
SCSI 50-PIN RIBBON 4 CONNECTOR	$9.99
SCSI 50-PIN RIBBON 5 CONNECTOR	$12.99
IDE 40-PIN RIBBON 3 CONNECTORS	$3.99
FLOPPY & IDE CABLE SET	$5.99

PARALLEL PRINTER CABLES

DESCRIPTION	PRICE
PARALLEL PRINTER CABLE 6' ASSEMBLED	$1.99
PARALLEL PRINTER CABLE 6' MOLDED	$2.99
PARALLEL PRINTER CABLE 10' ASSEMBLED	$2.99
PARALLEL PRINTER CABLE 10' MOLDED	$3.99
PARALLEL PRINTER CABLE 25' MOLDED	$9.99

SERIAL MALE/MALE or MALE/FEMALE

DESCRIPTION	PRICE
SERIAL 6'	$3.99
SERIAL 25'	$9.99
SERIAL 50'	$18.99

SERIAL FEMALE/FEMALE CABLES

DESCRIPTION	PRICE
SERIAL FEMALE/FEMALE 6'	$4.99
SERIAL FEMALE/FEMALE 10'	$6.99

OTHER CABLES

DESCRIPTION	PRICE
VGA 10FT. CABLE	$4.99
VGA MONITOR EXTENSION CABLE	$4.99
POWER CORD EXTENSION CABLE	$2.99
POWER SURGE PROTECTOR (METAL OR PLASTIC) UL APPROVED	$9.99

KEYBOARDS

KEYBOARDS

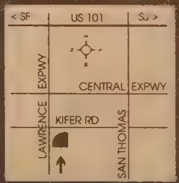
DESCRIPTION	PRICE
MITSUMI High Quality Keyboard	$29.99
MITSUMI BLACK	$49.99
MAX STANDARD 101 KEY	$19.99
ALPS SWITCH CLICK STYLE	$39.99

FOCUS

DESCRIPTION	PRICE
FOCUS 2000 W/COVER	$42.99
FOCUS 9000 with Calculator	$89.99

CPU COOLING FAN $29

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE



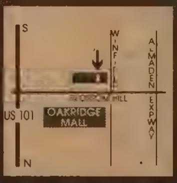
NCA
SUNNYVALE
1202 KIFER RD, SUNNYVALE, CA 94086

SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

NCA
SAN JOSE'
962 BLOSSOM HILL RD, SAN JOSE' CA 95123

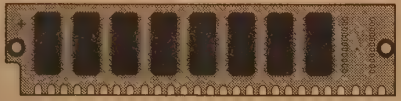


Corporate, Educational, Government, & International ACCTS: (408) 522-8672

©1993 INVERSE CORPORATION

MACINTOSH SECTION

MEMORY SIMMS



1MBX8	80ns	2Chip	$Call
1MBX8	80ns	8Chip	$Call
1MBX8	70ns	2Chip	$Call
1MBX8	70ns	8Chip	$Call
2MBX8	80ns	2Chip	$Call
4MBX8	80ns	8Chip	$Call
4MBX8	70ns	8Chip	$Call
4MBX8	60ns	8Chip	$Call
4MBX8	80ns	II-FX	$Call
16MBX8	70ns	8Chip	$Call

32-Bit for Quadra 800, Centris, & LCIII

2MB Module	$Call
4MB Module	$Call
8MB Module	$Call
16MB Module	$Call

POWERBOOK MEMORY

6MB Module (160/180)	$269
8MB Module (160/180)	$349
10MB Module (160/180)	$449
6MB Modules (140/145/170)	$229

MAC MEMORY INSTALLATION

2-Hr Installation $15
(excluding Powerbooks)

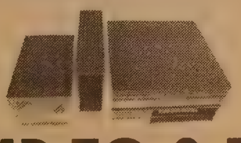
INTERNAL DRIVES KITS

SEE PAGES 2, 3, , 4, & 5 (Catalog) LOOK FOR SCSI DRIVES

BRACKETS KITS (most MACs) $15

EXTERNAL SUBSYSTEMS

COMPLETE:
HIGH QUALITY METAL CASE, CABLES, & CACHING SOFTWARE FOR MAC.



40MB TO 3.7GB

REFER TO PAGES 2 THROUGH 4 FOR COMPLETE LISTING

MAC MULTIMEDIA

EXTERNAL CD ROM KITS

TOSHIBA

XM-3401B

Fastest SCSI CD ROM Ever!!

- ▶ EXTERNAL CD-ROM
- ▶ MULTI-SPIN/MULTI-SPEED
- ▶ 256K CACHE
- ▶ TRANTOR CD SOFTWARE FOR MAC

$599

TEXEL

- ▶ DM-5024
- ▶ EXTERNAL W/CADDY
- ▶ TRANTOR CD SOFTWARE FOR MAC

$499

CHINON

CD-535 SERIES

- ▶ 280ms
- ▶ SCSI-II CD ROM
- ▶ Multisession Photo CD
- ▶ XA Compatibles
- ▶ 256k Buffer

$499

All Macintosh CD-ROM Titles 20% OFF

OPTICAL DRIVES

RICOH 128Mbyte, 3.5" Rewritable Optical Disk Drive

- ▶ SCSI Optical
- ▶ 35ms Access Time
- ▶ 3.5" Media 128Mbyte
- ▶ *For* MAC or IBM

EXT. W/CART.
$1099

Maxoptix™

TAHITI IIM - Multifunction

1GB CART. glass/poly $199

- ▶ 1GB OPTICAL READ/WRITE
- ▶ 1MB Read/WriteCache
- ▶ External SCSI
- ▶ 35ms

$2799

IOMEGA®

21MB Floptical Drive

floptical®

INCLUDES:
- ▶ External 3.5" 21MB Floptical
- ▶ One Floptical Media
- ▶ Cables
- ▶ Software for MAC

$399

21MB MEDIA BY IOMEGA LASER ETCHED
SINGLE ......**$19.99** **5-PACK**......**$89.99**

FAX/MODEM

USRobotics®
The Intelligent Choice in Data Communications

14.4 SPORTSTER MAC & FAX

$235

ARCHIVE

COMPLETE EXTERNAL WITH CABLES , CARTRIDGE, AND SOFTWARE

PYTHON®

4324 TURBO PYTHON	4542NT DAT
◆ 4GB DAT 4mm	◆ 4-8GB DAT 4mm
◆ 1MB Cache Buffer	◆ 11MB/MIN.
EXTERNAL FOR MAC	EXTERNAL FOR MAC
$1499	**$1399**

2.0GB 4mm Dat External for MAC........$1199

REMOVABLES

BERNOULLI

BERNOULLI MULTI-DISK™ 150

MAC Transportable
- ▶ Ext. Multi-Disk 150™
- ▶ 150MB Cartridge
- ▶ MAC Software

$799

SyQuest

REMOVABLES *for* MAC
Complete, Plug & Play External Kits.

- ▶ EXTERNAL SYQUEST DRIVE
- ▶ CARTRIDGE
- ▶ CABLES (choice of 50C-Mac or 50C-50C)
- ▶ STANDARD POWER CORD
- ▶ FORMATTING SOFTWARE ($39 Value)

44MB SQ555	**$399**
88MB SQ5110	**$499**
88MB C SQ5110C	**$589**
105MB SQ3105	**$688**

YOUR HARD DRIVE & MULTIMEDIA SUPER SOURCE

SF
US 101
SJ
EXPWY
CENTRAL
EXPWY
LAWRENCE
KIFER RD
SAN THOMAS

NCA SUNNYVALE
1202 KIFER RD. SUNNYVALE, CA 94086

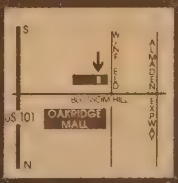
SUNNYVALE STORE:
M-F: 9-8, Sat: 10-7, Sun: 11-6
1202 KIFER RD & LAWRENCE EXPWAY
(408) 739-9010 FAX (408) 739-2420

POs

SAN JOSE STORE:
M-F: 11-8, Sat: 10-7, Sun: 11-6
962 BLOSSOM HILL RD & WINFIELD AVE
(408) 363-4600 FAX (408) 363-4610

Corporate, Educational, Government, & International ACCTS: (408) 522-8672

NCA SAN JOSE
962 BLOSSOM HILL RD. SAN JOSE CA 95123



©1993 INVERSE CORPORATION

We Have Done Our Homework For The Latest Tec

UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle UM

AIR ISA VESA Local Power Station

- ○486 AIR ISA 3 Slot VESA LocalBus 256K Cache Motherboard
- ○8MB 70ns SIMM RAM (1M-70ns SIMMx8)
- ○1.2M & 1.44M TEAC Floppy Drives
- ○213MB IDE Western Digital 64K Cache Harddisk
- ○Promise DC2000 VLB 32Bit IDE Controller with I/O
- ○SPiDER VLB 1MB Windows Accelerator
- ○14" 1024X768 0.28DP Impression Monitor
- ○Premium Mini Tower 230W PS
- ○101 KeyTronic Keyboard

486-33SX	$1492
486-33DX	$1583
486-50DX/2	$1706
486-66DX/2	$1784

See The Difference! With this name brand AIR motherboard, you get 3 VLB slots, all with Bus mastering capability, Intel P5 Overdrive support and GUARRANTEED future compatiblity, you are definitely buying into future with this motherboard! Our Promise VLB 32Bit IDE controller boosts harddisk performance upto 3MB/sec data transfer rate (by CORETEST V2.90), three times on average faster than regular ISA Bus! Our SPiDER Windows Accelerator also buys you incredible video performance of 13Million Winmarks and 9000 Character/ms in DOS (Landmark V2.0). Optional upgrades give you various combination for your various needs. Another technology advance and price breakthrough brought to you from us! No one can offer you this perfect machine at this perfect price, we guarrantee it! We 'vealso added the 33SX version for those of you who don't need the math coprocessor feature.

Recommended Upgrades:

Orchid Fahrenheit VLB STD/VA/P9000/Celsius	add$68/83/250/230
Diamond SpeedStarPro/Stealth 24/Pro/Viper	add$25/65/265/284
Promise 1/4/16MB Cache VLB 4030VL	add$181/270/722
Western Digital HD 170/250/340MB	add$-20/40/110
UltraStor SCSI-2 VLB 34F + SCSI HD	add$Call
Premium DeskTop/Med/Full Tower	add$5/25/45
KFC 14/15/17" Multisync Digital Monitor	add$108/210/585
Sony/NEC/Viewsonic/Nanao/Mag	add$Call
Mouse/DOS V5.0/6.0/Windows V3.1	add$Call

AIR EISA VESA Local Power Station

- ○486 AIR EISA 3 Slot VESA LocalBus 256K Cache Motherboard
- ○8MB 70ns RAM 72 Pin SIMM
- ○1.2M & 1.44M TEAC Floppy Drives
- ○340MB Western Digital Harddisk 64K Cache
- ○Promise DC-4030VL VESA LocalBus IDE 1MB Cache Controller
- ○Orchid Celsius VLB 1MB Fastest Windows Accelerator using IIT AGX015
- ○KFC 15" 1280X1024NI Multisync, Digital Controlled, Flat-Screen
- ○Premium Medium Tower 230W PS
- ○I/O 2S/1P/1G
- ○101 KeyTronic Keyboard

486-33SX	$2516
486-33DX	$2607
486-50DX/2	$2730
486-66DX/2	$2808

The highest-end you can find! AIR EISA VESA LocalBus Motherboard supports P5 Overdrive, ZIF Socket for easy upgrade & 256MB Memory on board. Yes! 256MB using 72Pin 64MB SIMM! (Soon to be released) Great news for Imaging and Photographic software users! And with full 8 EISA slots and 3 VESA LocalBus extensions, you can plug in any different bus cards you want! We bundle this machine with a 286 CPU built-in Promise DC-4030VL 1MB Cache Controller and rockets the Data Transfer Rate to close to 10MB/Sec! This amazing controller supports 4 hard drives and transfers up to 14.3MB/Sec. Besides we add an all new Orchid Celsius VLB and make the Windows fly at the highest possible WinMarks. Believe it, you won't find a machine performs closer to this at any price!

Recommended Upgrades:

72Pin SIMM to 16MB/32MB/64MB	add $320/925/2135
Ultrastor SCSI-2 VLB 34F + SCSI HD	add $Call
Premium Full Tower	add $20
KFC17" Multisync Digital-Control Monitor	add $375
Sony/NEC/Viewsonic/Nanao/Mag	add $Call
Mouse/DOS V5.0/6.0/Windows V3.1	add $Call

Reminder: It makes no sense to buy an VLB system without Harddisk Controller and Video card on VLB. You aren't taking the advantage of the VLB! Be careful!

Call for 386 systems, we've got them at the lowest prices!

Basic System Includes: 486 Motherboard & Intel CPU, 1MB RAM-70ns, 2HD/2FD IDE Controller with 2S/1P/1G, 1.2M Teac Floppy Drive, Standard Mini-Tower Case with 200W Power Supply, 101 Key Enhanced Keyboard.

486 ISA System Configuration	486SX 25MHz w/128K	486DX 33MHz w/128K	486DX/2 50MHz w/128K	486DX 50MHz w/128K	486DX/2 66MHz w/128K
Basic System	$397	$561	$684	$698	$762
Basic System plus 85MB HD, 512K SVGA Card & .39DP Monitor	$801	$965	$1088	$1102	$1166
Basic System plus 4MB RAM, 85MB HD, 1.2&1.4FD, 512K SVGA & .39DP Monitor	$938	$1102	$1225	$1239	$1303
Basic System plus 4MB RAM, 130MB HD, 1.2&1.4FD, 512K SVGA & .39DP Monitor	$958	$1122	$1245	$1259	$1323
Basic System plus 4MB RAM, 213MB HD, 1.2&1.4FD, 512K SVGA & .39DP Monitor	$1018	$1182	$1305	$1319	$1383
Basic System plus 8MB RAM, 130MB HD, 1.2&1.4FD, 512K SVGA & .39DP Monitor	$1086	$1250	$1373	$1387	$1451
Basic System plus 8MB RAM, 213MB HD, 1.2&1.44FD, 512K SVGA & .39DP Monitor	$1146	$1310	$1433	$1447	$1511
Basic System plus 8MB RAM, 340MB HD, 1.2&1.44FD, 512K SVGA & .39DP Monitor	$1256	$1420	$1543	$1557	$1621

Wanna bet on the latest VLB technology? Who can guarantee that the system you want can actually be built and work well? At UMiracle we keep searching around and find all the possible solutions for you - Which harddrive will work the best on VLBus? Which video card has the best value on the VL Bus? Which will support 50MHz? What video chipset should you use? Will it be safe to be on 50MHz VLB? What is Bus-Mastering? Do you need that? How about P5 Overdrive upgradeable? At UMiracle, We make them all work and work the best. Come to us, we have done the homework so you don't have to!

Multimedia Upgrades

CD-ROM/Sound Card/Titles:

Toshiba XM-3401B SCSI 256K Cache	
200ms, 330KB/Sec, Multi-Spin/Speed Internal	$465
Optional 8 Bit CD Controller w/ Software Driver	add$75
NEC CDR-84 Internal SCSI 280ms Multi-speed 300KB/S	$440
Texel DM-3024 Internal SCSI 265ms Multi-Spin	$385
Creative Labs Multimedia Starter Kit includes:	
CD ROM, Sound Blaster Pro, MS BookShelf, etc	$485
ProAudio Spectrum 16 w/ SCSI Interface	$175
Creative Labs Sound Blaster Deluxe	$89
Creative Labs Sound Blaster Pro Deluxe	$133
Creative Labs Sound Blaster 16 ASP	$229
Creative Labs Video Blaster	$328
CD-ROM Titles	$Call

At UMiracle, we give you all these:

- ☑ Free Local Area Delivery for System Purchase
- ☑ 1 Year Parts and Life Time Labor Warranty
- ☑ Expertise LifeTime Technical Support
- ☑ 30 Day Money Back Compatibility Guarantee

Phone: 510-226-6746

Fax:510-226-6758

Mon to Sat 9:00AM-6:00PM PST

- Prices, Specifications and Availability Subject to Change without Notice
- Prices reflect Cash Prices, Credit Card Purchases Subject to Surcharge
  Non-Local-Area Sales are Subject to Shipping and Handling Charges
- All Mail-in Returns Require a RMA Number & Must be in Original Condition Prepaid
- Optional 2nd Year Extended Parts Warranty for 5% of system price, call for detail!

We have demo machines in our showroom, come and try!

nology. VESA Local Bus, You Can Count On Us!

e **UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle**

Components/Upgrades

Motherboard without CPU: (Call for CPU Prices)	
386/486 ISA 128K (25/33/50MHz-SX/DX/DX2)	$100
486 ISA VLB 256K (25/33/50MHz-SX/DX/DX2)	$140
486 AIR ISA VLB 256K 3 VLB Slots (Upto 50MHz) P24T Support, Bus-Mastering, US Made	$205
486 AIR Full EISA VLB 3 VLB Slots (Upto 50MHz) Up to 256MB by 72Pin SIMM, P24T Support, US Made 8 EISA slots + 3 VLB Extensions (256/512K)	$455/$530
486 ELISA VITAL Full EISA VLB 256K 3 VLB Slots, (Upto 50MHz) 256MB by 72Pin SIMM, Cache up to 1MB, P24T ZIF Socket 8 EISA + 3 VLB Extensions, US Made	$380
486 Orchid VLB SuperBoard 256K Cache Rev. C 2 VLB Slots, Bus-Mastering, Upto 50MHz	$230
Memory: (Call to Confirm)	
1MB RAM (256K-70ns SIMMx4)	$39
4MB RAM (1M-70ns SIMMx4)	$128
16MB RAM (4M-70ns SIMMx4)	$580
72Pin 70ns SIMM Module (4MB/8MB/16MB)	$150/285/605
Controller Card:	
AT I/O 2S/1P/1G	$12
AT I/O 2S/1P/1G w/ High Speed 2 UART 16550's	$45
16Bit IDE 2FD/2HD with 2S/1P/1G	$14
IDE Caching Controller Card Upto 64MB, 2HD/4FD	$139
Promise DC-2000 VLB IDE Controller I/O	$50
Orchid VLB IDE Controller w/ I/O	$65
DTC 2270VL VLB IDE w/ I/O	$80
Promise DC-4030VL VLB IDE w/ 1MB Cache	$180+39
UltraStor SCSI-2 VLB 32K Bus-Mastering 34F	$275
UltraStor 34FK including 34F + Software Driver Kit	$320
AIR EISA SCSI-2 VLB Bus-Mastering Controller Upto 50MHz, Supports EISA/VLB	$275
AIR VLB 32Bit Ethernet Adaptor	$315
Network Ethernet NE2000 Adaptor	$85
Video Card	
16Bit 512K/1MB Trident SVGA 1024x768	$39/59
16Bit 1MB Tseng-4000 72Hz 32K Color	$76
SpeedStar 24X Accelerator 1MB 16.7M Color	$150
Tseng ET4000 VESA LB 1280x1024 16.7M Color	$115
SPiDER VLB Cirrus Logic 1MB/2MB Accelerator	$95/145
Genoa WindowsVGA 8500VL VLB 1MB	$115
Orchid Fahrenheit VLB w/1MB (Upto 50MHz) Standard/Voice Annotation	$163/178
Orchid P9000 VLB 3MB 44Million Winmarks	$345
Orchid Celsius VLB 1MB/2MB	$325/405
Diamond Speedstar Pro VLB 1MB	$120
Diamond Stealth 24 VLB 1MB DRAM S3-805	$160
Diamond Stealth Pro VLB 2MB VRAM S3-928	$360
Diamond Viper VLB 2MB VRAM 44M Winmarks	$379
AIR Star2000 VLB w/ Weitek Power 9000 2MB	$385
ATI Ultra Pro VLB 2MB VRAM 30M Winmarks	$380
Monitor:	
Impression 14"1024x768x0.39DP	$205
Impression 14"1024x768x0.28DP	$255
Impression 14"1024x768NIx0.28DP	$285
KFC 14" Multisync, 1024x768NIx0.28DP, BEST BUY!! Digital-Control, Non-Glared	$363
KFC 15" Multisync, 1280x1024NIx0.28DP, BEST BUY!! Digital-Control, Non-Glared, Flat-Screen	$465
KFC 17" Multisync, 1280x1024NIx0.26DP, BEST BUY!!! Digital-Control, Non-Glared, Flat-Screen	$840
Sony/NEC/Viewsonic/Nanao/Mag	$Call
Modem:	
2400 Baud Send-Fax Internal + Bitfax for Windows	$31
2400 Baud with V42bis 9600 Send/Receive Fax Internal + Bitfax for Windows	$57
14.4K Baud V.32Bis V.42Bis MNP5 14.4K S/R Fax Bitfax Software Internal/External	$164/194
Floppy Drive/Tape Backup:	
Teac 1.2M 5.25"/1.44M 3.5"/2.88M 3.5"	$53/48/95
Teac Dual 1.44M & 1.2M	$135
Archive 250MB Int. TapeBackup + DC 2120 Tape	$170+20
Colorado 250MB Int. TapeBackup + DC 2120 Tape	$190+20
KeyBoard/Mice/Software/Chassis/Misc:	
101 Enhanced	$23
KeyTronic 101 Enhanced	$34
Focus 2001 101 Enhanced Click	$41
Focus 8000 111 with Calculator	$44
Focus 9000 129 Programmable with Calculator	$69
MS Compatible 3-Button Mouse	$15
Logitech First Mouse/Mouseman/Trackman	$39/49/75
True MicroSoft Serial Mouse	$49
MS DOS 6.0/Windows V3.1 with System Purchase	$49/39
486 CPU Cooling Fan	$20
Chassis Second Cooling Fan	$20
Standard Mini Tower	$55
Premium w/ PS Desktop/Mini/Med/Full Tower	$75/70/95/115

Add and subtract to make your dream machine!

International Order Welcome!

We ship to you daily!

Orchid Super VESA LocalBus Station

- ○Orchid SuperBoard 486 VLB 2 Slot 256K Cache Motherboard
- ○4MB 70ns SIMM RAM (1M-70ns SIMMx4)
- ○1.2M & 1.44M TEAC Floppy Drives
- ○213MB Western Digital Harddisk 64K Cache
- ○Orchid VESA LocalBus 32Bit IDE Controller with 2S/1P/1G
- ○Orchid VLB Fahrenheit STD 1MB w/ S3-805 Chipset 24Million Winmarks
- ○14" 1024X768 0.28DP Impression Monitor
- ○Premium Mini Tower 230W PS
- ○101 Enhanced Keyboard

486-33SX	$1461
486-33DX	$1552
486-50DX/2	$1675
486-50DX	$1689
486-66DX/2	$1753

Introducing Orchid's new Second Generation Superboard 486 VLB - the minibaby AT-sized motherboard with an unrivalled feature set. This unique motherboard rounds out Orchid's family of VLB products to provide complete VLB solution., including support of 50MHz on VESA LocalBus. With Orchid's new VLB IDE I/O card and Orchid Fahrenheit VLB, you simply won't find anything that's faster and more reliable. Newest design allows motherboard to support bus-mastering and guarantee running at true 50MHz. A complete VESA LocalBus solution from Orchid! Fahrenheit VLB VA with Voice Annotation capability lets you speak to your computer rather than type.P9000 VLB and CelsiusVLB provide cablier graphics, P9000 With 3MB and Dual Weitek Power 9000 + Weitek W5286 Super VGA Chip, video performance flies up to over 50 Million Winmarks!Latest Celsius VLB even breaksany Windows perfermance records, we guarantee it!!!

Recommended Upgrades:

Orchid Fahrenheit VLB VA/P9000/Celsius	add$15/182/162
Diamond SpeedstarPro/Stealth 24/Pro/Viper	add$-43/-3/197/216
Promise 1/4/16MB Cache VLB 4030VL	add$166/255/707
Western Digital HD 170/250/340MB	add$-20/40/110
UltraStor SCSI-2 VLB 34F + SCSI HD	add$Call
Premium DeskTop/Med/Full Tower	add$5/25/45
KFC 14"/15"/17" Multisync Monitor	add$108/210/585
Sony/NEC/Viewsonic/Nanao/Mag	add$Call
Mouse/DOS V5.0/6.0/Windows V3.1	add$Call

ISA VESA Local Power Station

Special 3% Off This month only!!

- ○486 ISA VESA LocalBus 256K Cache Motherboard
- ○4MB 70ns SIMM RAM (1M-70ns SIMMx4)
- ○1.2M & 1.44M TEAC Floppy Drives
- ○170MB Western Digital Harddisk 64K Cache
- ○Promise DC2000 VLB 32Bit IDE Controller with I/O
- ○SPiDER VLB 1MB Windows Accelerator
- ○14" 1024X768 0.28DP Impression Monitor
- ○Premium Mini Tower 230W PS
- ○101 Enhanced Keyboard

486-33SX	~~$1268~~	$1230
486-33DX	~~$1359~~	$1318
486-50DX/2	~~$1482~~	$1438
486-66DX/2	~~$1560~~	$1513

Don't just blindly look for the lowest prices! Regular ISA system is bottom-necking with it's 8MHz AT bus. Even with a fast CPU, it's like a three hundred horse-powered YUGO, harddisk and video performances are limiting the overall performance.Think smart and get a well-balanced VESA LocalBus system for now, and for your future. Spend a little bit more money, break the 8MHz AT Bus bottleneck and run the video and harddisk at the same speed that CPU is running! With this fully-tested VLB motherboard, we can guarrantee that you won't run into any incompatibility problem! And with our Promise 32Bit VLB IDE controller and 32Bit VLB video accelerator, harddisk transfer performance TRIPLES! Video runs at least (not Up to!!) TEN TIMES faster in both DOS and Windows than Regular ISA computer. Come on in and get a test-drive on this amazing machine! You have to see it to believe it!

Recommended Upgrades:

Orchid Fahrenheit VLB STD/VA/P9000/Celsius	add$68/83/250/230
Diamond SpeedstarPro/Stealth 24/Pro/Viper	add$25/65/265/234
Promise 1/4/16MB Cache VLB 4030VL	add$181/270/722
Western Digital HD 213/250/340MB	add$20/60/130
UltraStor SCSI-2 VLB 34F + SCSI HD	add$Call
Premium DeskTop/Med/Full Tower	add$5/25/45
KFC 14"/15"/17" Multisync Monitor	add$108/210/585
Mouse/DOS V5.0/6.0/Windows V3.1	add$Call

3% Off

3% Off is limited to only this configuration and recommended upgrades

Hard Disks

Conner	
85MB IDE CP30084E 17MS	$160
120MB IDE CP30104 19MS	$185
170MB IDE CP30174 17MS	$215
250MB IDE CP30254 14MS	$285
Quantum	
127MB ELS127A IDE 32K	$199
240MB LPS240A IDE 256K	$300
240MB LPS240S SCSI 256K	$310
525MB LPS525AT IDE 256K	$780
1.2GB P1225 512K SCSI-2	$1375
Toshiba	
877MB MK438FB SCSI-2	$939
1.2GB MK538FB SCSI-2	$1155
Western Digital	
130MB IDE WDAC2120	$180
170MB IDE WDAC2170	$220
213MB IDE WDAC2200	$240
250MB IDE WDAC2250	$280
340MB IDE WDAC2340	$350
Maxtor	
130MB IDE 7120AT 15MS	$180
130MB IDE 7131AT 14MS	$195
213MB IDE 7213AT 15MS	$265
245MB IDE 7245AT 15MS	$285
345MB IDE 7345AT 14MS	$365
340MB SCSI LXT340S	$545
535MB SCSI LXT535S	$880
1.2GB MXT-1240 512K 8MS	$1375
1.7GB P1-17S 256K 13MS FH	$1400

UMiracle Microsystems, Inc.

CHRISTY ST
880N
N
S
UMIRACLE
AUTO MALL PKWY
(Old "Durham")

We are inside [illegible] Executive Centre

"The PC Enthusiastic Group"
43038 Christy Street
Fremont CA 94538
Tel:(510)226-6746 Fax:226-6758

VISA MasterCard ATM COD

HIQ
HIQUALITY SYSTEMS, INC.
A World of Technology in Your Hand

Black Case Available at Additional Cost

HiQ Enterprise III 4DX2-66EVLB System

American Megatrends

- Intel 486DX2-66MHz Processor
- AMI Enterprise III EISA VESA Local Bus Motherboard
- **Intel P24T Support (Zip Socket)**
- 8MB RAM (70ns) Expandable to 256MB
- 256K SRAM Cache
- 1.2MB and 1.44MB TEAC Floppy Drive
- 210MB IDE Western Digital IDE Hard Drive
- 32-Bit VESA Local Bus IDE Controller 2H/2F
- 2 Serial, 1 Parallel and 1 Game Ports
- Fahrenheit VESA Local Bus 32-Bit SVGA Card 1280 w/1MB RAM
- 15" ADI 4G SVGA 1280 x 1024, 0.28dp Color Monitor
- 101 Enhanced Waterproof Keyboard
- HiQ Full Tower case w/250W PS, Dual fans
- Hi-Res Mouse/ Windows 3.1 and DOS 6 with manuals

Only ***$2859***

HiQ Super Voyager 450VLB System

American Megatrends

- Intel 486DX-50MHz Processor
- AMI Super Voyager VESA Local Bus Motherboard
- **Intel P24T Support (Zip Socket)**
- 4MB RAM (70ns) Expandable to 64MB
- 256K SRAM Cache
- 1.2MB and 1.44MB Teac Floppy Drive
- 170MB IDE Western Digital IDE Hard Drive
- 210MB IDE Western Digital IDE Hard Drive
- 2 Serial 16550 UART, 1 Parallel & 1 Game Ports
- Fahrenheit VESA Local Bus 32-Bit SVGA Card 1280 w/1MB RAM
- 14" ADI 3+ SVGA 1280x1024 0.28dp Color Monitor
- 101 Enhanced Waterproof Keyboard
- Mid Tower case w/250W PS
- Hi-Res Mouse/ Windows 3.1 and DOS 6 with manuals

Only ***$2249***

NO Down Payment!

No Interest for 90 Days!*

1-Year On-Site Optional Service for *$1.00!*

30 Day "No Questions Asked" Money-Back Guarantee

- FREE Lifetime Technical Support
- One Year Parts & 2 Years Labor Warranty
- Customized Configurations & Leasing
- Corporate & Government P.O.s Welcome!

*With Credit Approval

MULTIMEDIA

HiQ Family Entertainment Kit

Panasonic
CR-522A CD-ROM
Special Sale Price $449

- SoundBlaster Pro II Stereo version
- Mini Stereo Speakers
- CD Software Titles Included:
  - Encyclopedia by Software Toolworks
  - World Atlas by Software Toolworks
  - Where In the World is Carmen SanDiego - Deluxe Version
  - San Diego Zoo Presents "The Animals"
  - Microsoft Bookshelf

HiQ Performance Entertainment Kit

- Toshiba Internal 3401B CD-ROM
- Media Vision Pro Audio Spectrum w/SCSI Port
- Free Mini Stereo Speakers
- CD-Software Titles Included
  - Seventh Guest
  - Where In The World Is Carmen Sandiego
  - MS Bookshelf
  - Compton's Encyclopedia Software

$749

TOSHIBA XM-3401B

SUPER FAST CD-ROM

- 200ms, 330KB/Sec
- SCSI CD-ROM
- Multi-Spin/Multi Speed
- 256K Cache, Photo CD Comp

Internal $469 External $579

Your Path to Fun and Creativity!

Software Options List

Explore These Affordable Titles for just $29each

Reference Library by Software Toolworks
World Atlas by Software Toolworks
US Atlas by Software Toolworks
The Animals (San Diego Zoo)
Jones in the Fast Lane
Sherlock Holmes
Stellar Seven
Secret Weapon of Luftwaffe
GAME PAK 1 (5 Games)
King's Quest V
ARIS World View
ARIS Wild Places
Arcade Battles by Chestnut
Game Master by Chestnut
Beauty & the Beast
Chessmaster 3000
Battle Chess
Wing Commander
PC SIG 11
Carmen Sandiego
Secret of Monkey Island

GAME PAK 2 (10 Games)	$39
LOOM by Lucas Films	35
Composer's Quest	39
ARIS Jets & Props (2 CDs)	$39
Microsoft Bookshelf	65

With Purchase of CD-ROM

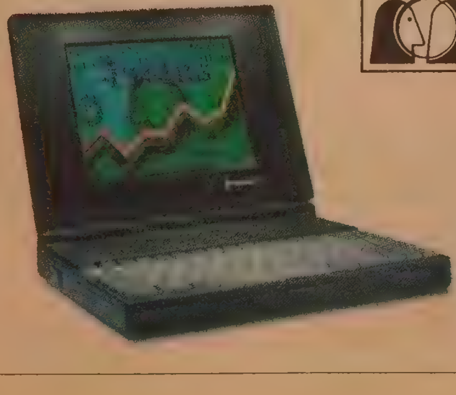
Twinhead *Standard NoteBook Features:*

- 4MB RAM Expandable to 20MB onboard
- 8K Internal Cache
- One Parallel /External Floppy Drive Port
- One External SVGA Port
- One 100-Pin Expansion/Accessory Port
- One RJ-11 Phone Modem/FAX Connector
- Removable NiCad Battery Pack
- AC Adapter/Recharger 120V/240V Input
- FREE Carrying Case
- 1 Year Warranty Service by Twinhead

Twinhead *486DX-33MHz NoteBook*

- Built-in 1.44MB Floppy Drive
- One Serial Port and One Ext. Keyboard/Mouse Port
- 10" Paper White, 64 Shade Sidelit Display
- 130MB IDE Hard Drive (200MB avaliable)
- 84 Key keyboard, 12 Function Keys w/Numeric & Editing Keypad
- MS DOS 5.0 with manuals
- Dimensions: 8.5"x11"x1.7", Weight: 5.8lbs w/ battery

Only *$2195*



Twinhead *486DX-33MHz Active Color Matrix NoteBook*

Only *$3995*

- Built-in 1.44MB Floppy Drive
- Two Serial Ports
- One External Keyboard Port
- 8.5" Active Color Matrix, 256 Color, Thin Film Transistor, 512K Video RAM
- 130MB IDE Hard Drive (200MB avaliable)
- 84 Key kybd, 12 Function Keys w/Numeric & Editing Keypad
- MS DOS 5.0 and MS Windows 3.1 with manuals
- Dimensions: 8.5"x11"x1.8", Weight: 6.3lbs w/ battery

Accept only the finest...
Caviar
WESTERN DIGITAL

Caviar is a trademark of Western Digital Corporation
All trademarks belong to their respective companies
Prices subject to change without notice

HIQ

For Orders Call:
1-800-827-5836

"HiQ has always provided the kind of service I look for in selecting a vendor to work with.

I know I can count on you to continue to provide us with real value for our money."

- Sandra E Thurman
Systems Analyst for
Amdahl Corporation

HiQ Full Tower configuration

This System is Capable of Running Marathons!

HiQ Super Power 4DX2-66VLB System

When you need a system to run Local Area Networks or Scientific and Graphics applications efficiently, this Top-of-the-Line system offers you Power, Speed and Dependability. The HiQ Super Power 486DX2 is built with the highest quality parts available, such as Intels' Lightning-fast 486DX2-66 MHz Microprocessor and the Micronics High-end motherboard!

- Intel 486DX2-66MHz Processor
- Micronics VESA Local Bus motherboard
- 4MB RAM (70ns) expandable to 64MB
- 256K SRAM Cache
- 2-VESA LB, Six 16-Bit Slots
- 1.2MB and 1.44MB Teac Floppy Drives
- 210MB Western Digital/IDE HDD 13ms
- Integrated 32-Bit Local Bus IDE controller w/2 Serial, 1 Parallel ports
- Fahrenheit VESA LB SVGA Card w/1MB RAM
- 14" SVGA Color Monitor, Non-Interlaced 1024 x 768 .28dp
- 101 Enhanced Waterproof keyboard
- Mid Tower Case w/230W Power Supply (Full Tower upgrade option - add $70)

COMPUTER SHOPPER TOP 10

*Computer Shopper Top 10 System Review March 1993

Only

$2149

HiQ Mid Tower configuration

33MHz of Pure Dependability and Power!

HiQ Power 433VLB System

Light Years ahead of the competition, This HiQ System processes Video Images 10 TIMES FASTER than standard ISA systems - perfect for AutoCad or Windows.

- Intel 486DX-33MHz Processor
- Micronics VESA Local Bus motherboard
- 4MB RAM (70ns) expandable to 64MB
- 256K SRAM Cache
- 2-VESA LB, Six 16-Bit Slots
- 1.2MB and 1.44MB Teac Floppy Drives
- 210MB Western Digital/IDE HDD 13ms
- Integrated 32-Bit Local Bus IDE controller
- w/ 2 Serial, 1 Parallel port
- Fahrenheit VESA LB SVGA Card w/1MB RAM
- 14" SVGA Color Monitor, Non-Interlaced 1024 x 768 .28dp
- 101 Enhanced Waterproof keyboard
- Mid Tower Case w/230W Power Supply

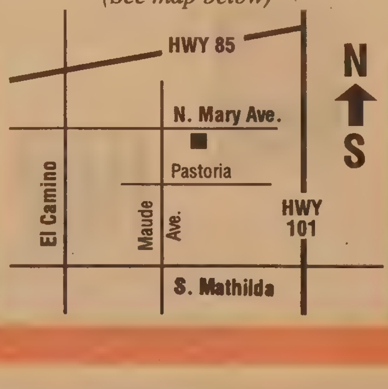
Only

$1899

FREE!

Hi-Res Mouse, MS Windows 3.1 & MS DOS 6 w/Manuals FREE with ALL Desktop Systems!

Stop by our convenient Sunnyvale Store (See map below)



One-Year On-Site Optional Service for Only $1.00!

Northern California Locations:

South Bay
740 N. Mary Ave., Sunnyvale, CA 94086
(408) 245-5836, Fax: (408) 245-3108

Marin County
2048 Fourth St., San Rafael, CA 94901
(415) 459-1893, Fax: (415) 459-7248

Stockton
1588 East March Lane, Stockton, CA 95209
(209) 472-7269, Fax: (209) 472-7269

Sacramento
11015 Olson Drive, Rancho Cordova, CA
(916) 863-7076, Fax: (916) 863-7098

HiQ Desktop configuration

HiQ Mini Tower configuration

NEW! HiQ Black Case System - Additional Cost (Call for Other Exciting Black System Configurations)

HiQ Ultimate 433I/450I Systems

For Business People Who Need a Powerful, Reliable System to Get the Job Done.

- Intel 486-33/486DX-50 Processor
- 64K SRAM Cache
- 4MB RAM expandable to 32MB
- 1.2MB and 1.44MB Teac Floppy Drives
- 170MB IDE Conner HDD w/32K Cache
- IDE controller 2H/2F
- 2 Serial, 1 Parallel and 1 Game ports
- Trident OEM SVGA Card, 16-Bit, 1024 x 768 w/1MB RAM
- 14" SVGA Color Monitor 1024x768, 0.28dp
- 101 Enhanced Waterproof keyboard
- AT Desktop Case w/220W Power Supply

Only ***$1469/$1629***

HiQ Ultimate 433VLB/4DX2-66VLB Systems

The Computer for Creativity. This Versatile System Allows You to Create Impressive Graphics!

- Vesa Local Bus
- Intel 486-33DX/486DX2-66 MHz Processor
- 4MB RAM (70ns) Expandable to 32MB
- 64K SRAM Cache
- 1.2MB and 1.44MB Teac Floppy Drives
- 170MB IDE Conner HDD w/32K Cache
- Vesa Local Bus 32 Bit IDE controller 2H/2F w/ 2 Serial, 1 Parallel and 1 Game ports
- VESA LB 32-Bit SVGA Card w/1MB RAM
- 14" SVGA Color Monitor 1024x768, 0.28dp
- 101 Enhanced Waterproof keyboard
- AT Desktop Case w/220W Power Supply

Only ***$1599/$1849***

HiQ Ultimate 425DX Systems

An Affordable System That Has All the Power You Need to Run the Most Complex Accounting Programs!

HOT MONTHLY SPECIAL

- Intel 486DX-25MHz Processor
- 4MB RAM (70ns) Expandable to 32MB
- 64K SRAM Cache
- 1.2MB & 1.44MB Teac Floppy Disk Drives
- 80MB Conner IDE Hard Disk 18ms
- IDE controller 2 Hard Drive/2 Floppy Disk Drive
- 2 Serial, 1 Parallel and 1 Game ports
- Trident OEM SVGA Card w/512K RAM
- 14" SVGA Color Monitor 1024 x 768 .39dp
- 101 Enhanced Waterproof keyboard
- Mini Tower Case w/200W PS

Mouse, Win 3.1 and On-Site Service Available for Only $80 with this system

Special Sale Price Only $1169

NETWORKING

HiQ, the Specialist for Problem-Free Network Installation.

Since 1987, HiQ has set the standard for sales and service in the personal computer market place. With offices from California to Georgia, HiQ has the experience and knowledge to help you achieve your personal computing and networking goals. There are many companies that will sell you a computer, but only one that will back you up with technical support, quality equipment and good old-fashioned service. If you're looking for a computer or an entire Local Area Network, HiQ wants to help you make the job easy.

Call HiQ Today! **1-800 827-5836**

NOVELL SMC SCO MICROSOFT 3COM LANtastic

HiQ file Server 4DX2-66I System

- Intel 486DX2-66MHz Processor
- 16MB RAM (70ns) Expandable to 32MB
- 256K SRAM Cache
- 1.2MB and 1.44MB Teac Floppy Drives
- 520MB IDE Fujitsu Hard Disk Drive 12ms
- IDE controller with 2 Serial, 1 Parallel ports
- Trident OEM SVGA Card, 16-Bit, 1024 x768, with 256K RAM
- 14" SVGA Mono Monitor, 1024 x 768
- 101 Enhanced Waterproof Keyboard
- HiQ Full Tower case w/250W PS, Dual fans
- Microsoft DOS 6 with manuals
- NE-2000 Ethernet 16-bit card

Only ***$2759***

HiQ Workstation 340DX System

- 386DX-40MHz Processor
- 64K Cache SRAM
- 4MB RAM (70ns) Expandable to 32MB
- 1.2MB Teac Floppy Drives
- 80MB IDE HDD w/32K Cache
- IDE controller w/ 2 Serial, 1 Parallel ports
- Trident OEM SVGA card, 16-Bit, 1024 x 768 w/1MB RAM
- 14" SVGA Color Monitor 1024x768, 0.28dp
- 101 Enhanced keyboard
- Mini Tower Case w/200W Power Supply
- Microsoft DOS 6 with manuals
- NE-2000 Ethernet 16-bit card

Only ***$1119***

Why You Should Buy From HiQ:

- Basic Pre-Configured Workstations
- Just Plug In and Run
- Free Network consulting service
- On-Site Training Available
- 30-Day Money Back Guarantee
- Warranty: One Year Parts & Two Year Labor
- Cabling/Software Installation Also Available
- **1-Year On-Site Optional Service $1.00!** (Hardware Only)

Networking Accessories:

Intel Ether Express 16-Bit Card	**99**
NE2000 Comp Ethernet Card 16-Bit w/10 BaseT, Coax	**$75**
NE2000 Comp Ethernet Card 16-Bit w/Combo	**79**
PS/2 Microchannel Ethernet Card w/10 BaseT, Coax	**169**
Pocket Ethernet Adapter w/10 BaseT, Coax	**169**
8 Port 10 baseT Concentrator	**269**
12 Port 10 BaseT Concentrator	**499**

*3Com, SMC, Intel and IBM Network Cards Also Available - Call For More Information

Accept only the finest... Caviar
WESTERN DIGITAL

HIQ
740 N. Mary Avenue,
Sunnyvale, CA 94086
(408) 245-5836
Fax: (408) 245-3108

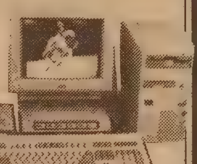
"WE'VE GOT THE BEST BOXES IN TOWN"

Plus RT COMPUTERS Offers FREE LIFETIME PHONE SUPPORT!

"RT WORK HORSE"

386 DX40 MHz 64K Cache

THE PERFECT GRADUATE GIFT!



- 4 MB RAM 70ns
- Mini Tower w/230 Watts
- 1.2 MB (5.25") Floppy Drive
- 1.44 MB (3.5") Floppy Drive
- 120 MB IDE Hard Disk
- 2H/2F/2S/1P/1G Controller Card
- 14" Super VGA Monitor .28dp
- Trident Super VGA Driver 1MB
- 101 Keyboard
- Serial Mouse
- MS DOS 6
- MS Windows 3.1

Other options or substitutions available

$1125

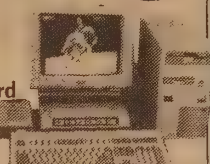
$45 MONTH

$45/MONTH

"RT MULTIMEDIA SYSTEM"

486DX-33 64K Cache

intel inside



- 4 MB RAM 70ns
- Mini Tower w/230 Watts
- 1.2 MB (5.25") Floppy Drive
- 1.44 MB (3.5") Floppy Drive
- 120 MB IDE Hard Disk
- 2H/2F/2S/1P/1G Controller Card
- 14" Super VGA Monitor .28dp
- Trident Super VGA Driver 1MB
- 101 Keyboard
- 3 Button Mouse
- MS DOS 6
- MS Windows 3.1
- Internal CD-ROM
- Sound Galaxy NX Sound Card w/MIDI & 2 Stereo Speakers
- 5 Bundled CD's

Other options or substitutions available

$1799

$70 MONTH

$70/MONTH

Easily Upgradable To 486DX!

"RT PREMIER"

486DX 33 MHz 64K Cache

- 4 MB RAM 70ns
- Mid Tower w/230 Watts
- 1.2 MB (5.25") Floppy Drive
- 1.44 MB (3.5") Floppy Drive
- 120 MB IDE Hard Disk
- 2H/2F/2S/1P/1G Controller Card
- 14" Super VGA Monitor .28dp
- Trident Super VGA Driver 1MB
- 101 Keyboard
- 3 Button Mouse
- MS DOS 6
- MS Windows 3.1

intel inside

Other options or substitutions available

$1399

$55 MONTH

$55/MONTH

HOT MULTIMEDIA SPECIAL

Turns Your PC Into A MultiMedia Workstation

- Mitsumi Internal CD-ROM 350ms Access Time
- Sound Galaxy NX Sound Card w/MIDI
- 2 External Speakers
- 5 CD's Including Colliers Encyclopedia, World Atlas, US Atlas, Mavis Beacon Teaches Typing, Chessmaster 3000
- Windows Compatible

ONLY **$399**

"RT LOCAL BUS"

486DX 33 MHz or 486DX2 66 MHz VESA LOCAL BUS 256K Cache

intel inside

- 8 MB RAM 70ns
- Mid Tower w/230 Watts
- 1.2 MB (5.25") Floppy Drive
- 1.44 MB (3.5") Floppy Drive
- 120 MB IDE Hard Disk
- 2H/2F/2S/1P/1G Controller Card
- LOCAL BUS IDE Controller
- 14" Super VGA Monitor .28dp (Non-Interlaced)
- Genoa VESA Local Bus Driver
- 101 Keyboard
- 3 Button Mouse
- MS DOS 6
- MS Windows 3.1 Other options or substitutions available

$65/75 MONTH

33 MHz **$1725** $69/MONTH

66 MHz **$1999** $79/MONTH

"WE BELIEVE EVERY CUSTOMER SHOULD LEAVE OUR OFFICE TOTALLY SATISFIED. THAT'S WHAT WE STRIVE FOR"

RAY TETREAULT
OWNER-RT COMPUTERS

RT COMPUTERS WILL CONFIGURE ANY SYSTEM FOR ANY NEED!!

CORPORATE, GOVERNMENT & EDUCATION PO'S WELCOME

MICROSOFT WORKGROUP FOR WINDOWS

The Perfect Network For Small Business

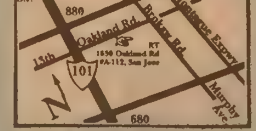
Let RT COMPUTERS Help Find The Right Solution To Your Networking Needs. We Offer The MICROSOFT WORKGROUP FOR WINDOWS, A LOW COST NETWORK SOLUTION FOR 2-200 USERS! Let RT COMPUTERS Design Your Network And Take The Mystery, Pain And High Cost Out Of The Process!

CALL FOR MORE INFORMATION & FREE CONSULTATION!

R·T COMPUTERS

FULL SERVICE DEALER

PRICES REFLECT CASH DISCOUNTS



FINANCING AVAILABLE

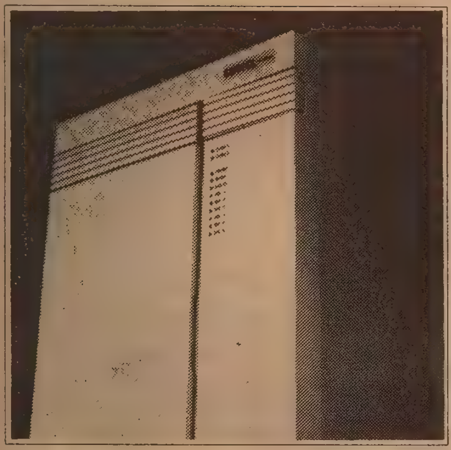
1630 OAKLAND RD.
SUITE #A-112
SAN JOSE, CA 95131
MON-FRI 9-6, SAT 10-4
FAX: (408) 437-1156
408 437-3063

PRICES SUBJECT TO CHANGE W/O NOTICE NOT RESPONSIBLE FOR TYPOGRAPHIC ERRORS

New Products

PC HARDWARE

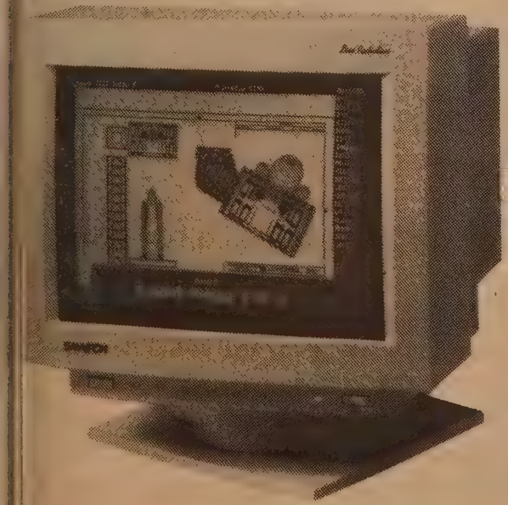
UNIQ FAULT-TOLERANT FILE SERVER



The Gemini ProFile series of fault-tolerant file servers was designed for use with Novell's NetWare SFT III to eliminate system downtime due to failure of a single file server. Mirrored twin servers provide a new level of fault-tolerant capabilities to networked computing systems. Large enterprise users can now safely migrate business-critical applications to economical LAN environments. The Gemini ProFile may be ordered to fit your needs. A typical system consists of twin servers configured with Intel 486DX2, 66MHz, 16MB of RAM, EISA SCSI hard/floppy controller, 500MB SCSI hard drives, 1.2MB and 1.44MB floppy drives, Novell Mirror Server Link cards, and two serial and one parallel port. ($19,500) UNIQ Technologies, Inc., 49090 Milmont Dr., Fremont, CA 94538. (510)226-9988.

PICTURE PERFECT FRAME GRABBER

Picture Perfect is a 24-bit RGB, live-motion video and frame grabber card capable of displaying 16.7 million high-resolution colors in real time. Picture Perfect allows users to utilize the capabilities of Super VGA, Windows accelerators, or Local Bus display cards. Its sixteen fractional random zooming steps give users smooth zooming capability. In addition, Picture Perfect's flexible design offers the ability to upgrade the display resolution and add on-board VGA displays, compression/decompression, or PC-to-TV decoder daughter cards. In-Motion Corp., 46731 Fremont Blvd., Fremont, CA 94538. (510)651-2626.



SAMTRON LOW-EMISSION 15" DISPLAY

The SC-528DXL, Samtron's new 15" low-emissions non-interlaced Enhanced Super VGA color monitor, is manufactured to meet the Swedish MPR II guidelines for VLMF (very low magnetic field) monitors. Ergonomic features include tilt-and-swivel stand, front access screen controls,

PRODUCT UPDATES

➤ **Aladdin Systems** introduced a special program for owners of non-Aladdin compression products to trade up to **StuffIt Deluxe** ($45), **StuffIt SpaceSaver** ($25), or **StuffIt Lite** ($15). Aladdin Systems, Inc., 165 Westridge Dr., Watsonville, CA 95076. (408)761-6200. AppleLink/AOL: ALADDIN.

➤ **Altima Systems** launched a promotion whereby new customers of any **Altima 486 Series notebook** who also purchase the accompanying accessory package will receive a redeemable certificate for an Audiovox PRO-95 transportable cellular phone free. Altima Systems, Inc., 1390 Willow Pass Rd., Suite 150, Concord, CA 94520. (510)356-5600.

➤ **Casa Blanca Works** released **Drive7 v2.3.4**the universal drive formatting software for the Macintosh. Major improvements include support for SyQuest/SCSI Probe standardization guidelines as well as formatting support for SyQuest "C" drives. Casa Blanca Works, Inc., 148 Bon Air Center, Greenbrae, CA 94904. (415)461-2227.

➤ **Dantz Development** announced that **Retrospect Remote 2.0 for A/UX** will be bundled with all configurations of the **Apple Workgroup Server 95**. Dantz Development Corp., 1400 Shattuck Ave., Berkeley, CA 94709. (510)849-0293. AppleLink: DANTZ.

➤ **Extended Systems** has reduced the price of two models of its **ExtendNet** product line by $200: **ExtendNet ESI-2856A** and **ExtendNet ESI-2866A**. Extended Systems, Inc., 5777 N. Meeker Ave., Boise, ID 83704. 1-800-235-7576.

➤ **Intelligent Security Systems** announced an upgrade for its **FIRMLOC PC** access control system. Intelligent Security Systems, Inc., PO Box 1133, Addison, TX 75001-1133. 1-800-237-4774, (214)315-1254.

➤ **MicroSpeed**, designers of utility software and input devices, has launched **Tracking with Education**, a low-cost acquisition program for educators. This program will provide school districts with reduced process on MicroSpeed's trackballs for Apple II series, Apple Macintosh, and IBM PC and compatible computers. MicroSpeed, Inc., 5005 Brandin Court, Fremont, CA 94538. 1-800-232-7888.

➤ **Opcode Systems** announced **OMS v2.0**, as well as changing the acronym from Opcode MIDI System to Open Music System to reflect the fact that future versions will incorporate source code from other developers. Opcode Systems, Inc., 3950 Fabian Way, Suite 100, Palo Alto, CA 94303. (415)856-3333.

➤ **Software Publishing Corp.** introduced its **Subscribe Program**, a two-year software upgrade agreement for corporate users of graphics and database software products. This program differentiates itself from similar long-term upgrade programs by requiring a low minimum qualification of only fifty units. Software Publishing Corp., 3165 Kifer Rd., PO Box 54983, Santa Clara, CA 95056-0983.

➤ **WordPerfect Corp.** released **WordPerfect 6.0 for DOS**. Upgrades for existing customers will have a retail price of $129. A competitive trade-up package will be available for $149. WordPerfect Corp., 15550 N. Technology Way, Orem, UT 84057-2399. (801)225-5000.

and an etched and polarized nonglare screen, plus multifrequency VGA and VESA capability. In addition, the SC-528DXL comes with a one-year parts and labor warranty. ($650) Samtron Display, Inc., 14251 E. Firestone Blvd., Suite 101, La Mirada, CA 90638. (310)802-8425.

REVIEWS

GAME REVIEWS

By Mike Markowitz

V FOR VICTORY: MARKET GARDEN 1944

Designed By: Eric Young, Ed Rains
Programmed By: Keith Zabalaoui, Larry Merkel
Published By: Three-Sixty Pacific
For: MS-DOS (3MB RAM, Super VGA graphics, mouse required, supports AdLib and SoundBlaster audio cards); Macintosh (1MB, System 6.04 or later, color requires 2.5MB or more)
List Price: $69.95

There are sketches of parachutes in DaVinci's notebooks, but the notion that soldiers could gain tactical surprise by jumping out of airplanes was developed by the Soviets in the 1920s. In 1940, German parachutists captured key forts and bridges during the invasion of Belgium and the Netherlands. In 1941 a German parachute division took heavy losses in a risky but successful attempt to seize the island of Crete. The British and American armies quickly created their own "airborne" divisions, combining parachutists and expendable gliders that could crash-land with heavier equipment. Very expensive to train and equip, these units required elite, slightly crazy troops; while hundreds of precious cargo planes had to be risked at low altitude to deliver them into battle.

THREE-SIXTY
MARKET GARDEN
V FOR VICTORY
ARNHEM-1944
IBM PC &
100% Compatibles

Graphics and Animation: 9
Sound: N/A
User Interface: 8
Overall Value: 8

The night of June 5, 1944, Allied airborne divisions dropped into Normandy before the D-Day invasion. Though scattered all over the map, they proved their worth. In September 1944, as the Nazi armies shattered in Normandy fell back toward Germany, three Allied airborne divisions were risked again in a bold plan—Operation Market Garden—to invade the occupied Netherlands. This would secure the crossings of the lower Rhine, opening an easy route into the North German Plain, and possibly ending the war before Christmas. The resulting battle, depicted in the film "A Bridge Too Far" was a disaster. The British paratroops assigned to take the vital bridge at Arnhem were cut off and wiped out.

This battle has always been a challenge to game designers. The battlefield is a long, narrow corridor, and the action is broken up into three or four widely scattered fights over bridges. Three-Sixty has tackled this complex battle with a splendid implementation of their battalion-level "V for Victory" game system. Each hexagonal terrain cell represents one kilometer, and each turn represents about four hours of real time. There are seven scenarios, ranging from single-screen battles that can be played in an hour to a sprawling campaign game that can take sixty hours to finish. You can play either side against the computer or a human opponent.

The user interface is a textbook example of how to manage complexity in an attractive and efficient way. There is no way to make stuff like allocating supply tonnage and plotting artillery support "intuitive," but with some study and practice, this system makes it relatively easy to observe the action and command your troops.

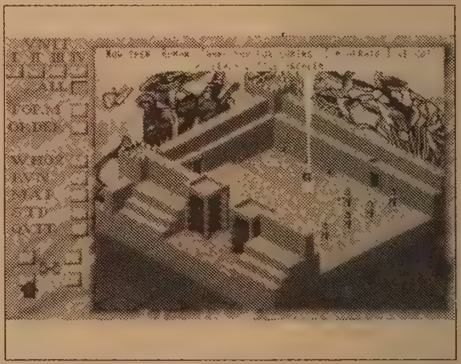
The DOS version is installed from a single high-density 3.5" disk and takes up a little more than 5MB of hard disk space. The Macintosh version is installed from two 800K disks and includes both color and monochrome files, as well as separate application files for systems with and without a math coprocessor. You can Trash the files you don't need. On a 4MB PowerBook 100, I experienced occasional crashes, which is not surprising with the first release of such a complex program. On a fast MS-DOS system, the program had very good performance, thanks in part to Mike Traffanstead's assembly language routines and Rob Brannon's FastDraw graphics implementation. The lurid color startup screens and music are a major waste of disk space.

Documentation includes a basic 32-page user guide, a thick reference manual, an installation leaflet, and a poster-sized map with terrain details that came out rather muddy, which is, I suppose, meteorologically accurate for Holland in September. (Three-Sixty Pacific, Inc., 2105 South Bascom Ave., Campbell, CA 95008. 1-800-653-1360)

ROME: PATHWAY TO POWER

Designed By: Steve Grand and Ian Saunter
Published By: Maxis
For: MS-DOS (640K, VGA, supports mouse and popular audio cards)
List Price: $49.95

The time is August, 79 A.D. The place is Herculaneum, a seaside resort at the foot of Mt. Vesuvius. Your name is Hector, a slave in the household of a wealthy lawyer. Your assignment is to deliver a message across town. But if you want to avoid being engulfed in molten lava, you need to start planning your escape. If you survive this challenge and the conspiracies, battles, and disasters that follow, you can climb the social ladder—Citizen, Centurion, even Emperor.



The game alternates between animated sequences and an unusual scrolling "3-D" display (in isometric projection) that shows the buildings and people immediately

5 YEARS EXPERIENCE

COMPATIBLE SYSTEMS OR BRAND NAME

COMPLETE SYSTEMS

486DX-66 VESA LOCAL BUS 4MB RAM/200MB HD SVGA SYSTEM

- 4MB RAM/200MB Hard Drive
- Impression SVGA Monitor 1024x768 .28
- Trident SVGA Card w/1MB
- 1.2 & 1.44 Floppy Drives
- 101 Keyboard
- Serial Mouse

$1545

486DX-50 MHz 256K VESA LOCAL BUS 4MB RAM/200MB HD SVGA SYSTEM

- 4MB RAM/200MB Hard Drive
- Impression SVGA Monitor 1024x768 .28
- Trident SVGA Card w/1MB
- 1.2 & 1.44 Floppy Drives
- 101 Keyboard
- Serial Mouse

$1435

486DX-50 MHz 128K 4MB RAM/200MB HD SVGA SYSTEM

- 4MB RAM/200MB Hard Drive
- Impression SVGA Monitor 1024x768 .28
- Trident SVGA Card w/1MB
- 1.2 & 1.44 Floppy Drives
- 101 Keyboard
- Serial Mouse

$1399

486DX-33 MHz 256K VESA LOCAL BUS 4MB RAM/200MB HD SVGA SYSTEM

- 4MB RAM/200MB Hard Drive
- Impression SVGA Monitor 1024x768 .28
- Trident SVGA Card w/1MB
- 1.2 & 1.44 Floppy Drives
- 101 Keyboard
- Serial Mouse

$1299

HARD DRIVES

80MB IDE	$179
105MB IDE	180
120MB IDE	185
175MB IDE	230
200MB IDE	250
250MB IDE	285
340MB IDE	385
1.2GB IDE	1245

MULTIMEDIA

Sony Internal CD-ROM	$249
Mitsumi Internal CD-ROM	179
Chinoon Internal CD-ROM	334
NEC CD-ROM	549
NEC CD-ROM	599
Sound Blaster Card	85
Sound Blaster Pro	135
Mitac Complete CD Kit	399

486DX-33 MHz 128K 4MB RAM/200MB HD SVGA SYSTEM

- 4MB RAM/200MB Hard Drive
- Impression SVGA Monitor 1024x768 .28
- Trident SVGA Card w/1MB
- 1.2 & 1.44 Floppy Drives
- 101 Keyboard
- Serial Mouse

$1275

486DLC-33 MHz 128K 4MB RAM/200MB HD SVGA SYSTEM

- 4MB RAM/200MB Hard Drive
- Impression SVGA Monitor 1024x768 .28
- Trident SVGA Card w/1MB
- 1.2 & 1.44 Floppy Drives
- 101 Keyboard
- Serial Mouse

$1099

386DX-40 MHz 128K 4MB RAM/120MB HD SVGA SYSTEM

- 4MB RAM/200MB Hard Drive
- Impression SVGA Monitor 1024x768 .28
- Trident SVGA Card w/1MB
- 1.2 & 1.44 Floppy Drives
- 101 Keyboard
- Serial Mouse

$965

MONITORS

Impression SVGA .39	$199
Impression SVGA .28	245
Impression SVGA .28 NI	275
Viewsonic 1 .39	239
Viewsonic 4E .28	295
Viewsonic 6FS 15"	525
Viewsonic 7 17"	985
NEC 3FGX	615
NEC 4FG	735
NEC 5FG	1285
NEC 6FG	2325
Goldstar 15" .29	469
Goldstar 17" .31	725
Magnavox 20"	1299

VGA CARDS

Oak 1MB SVGA Card	$49
Trident SVGA 1MB	54
Prodesigner IIs 1MB	130
ATI Wonder VGA VL24 1MB	129
ATI Ultra Plus 2MB	299
Orchid Fahrenheit 1MB	147
Orchid Fahrenheit VLB	180
Paradise Windows Acc. 1MB	150

TOSHIBA

Satellite
T1850

T1850 Bundle 4/80MB	$1479
T1850 Bundle 4/120MB	1675
T1850C Bundle 4/80MB	2060
T1850C Bundle 4/120MB	2249
T4400C 4/120	3325
T4500 4/120	2145
T4500C 4/120	3635

COMPAQ

Contura 3/25, M84 Bundle	$1470
Contura 3/25, M120 Bundle	1617
Contura 3/25C, M84 Bundle	2010
Contura 33/25C, M120 Bundle	2150
Prolinea 4/33 M120 Bundle	1580
Prolinea 4/50 M120 Bundle	1899

IBM®

WE CARRY ALL IBM THINKPAD & VALUEPOINT PRODUCTS

ThinkPad 700C/720C	CALL

Avanti

AVANTI 486-25 SLC
4MB/120MB HD• 24/96 Modem
• Dos, Windows • Mouse • Carrying Case
$2099

AVANTI 486-25 SLC Color
4MB/120MB HD • 24/96 Modem
• DOS • Windows • Mouse
$2245

HEWLETT PACKARD

DeskJet 500	$375
DeskJet 500C	489
DeskJet 550C	679
LaserJet IIP Plus	775
LaserJet IIIP	855
LaserJet 4 w/Cables	1365

PRINTERS

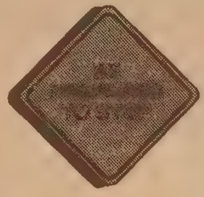
CITIZEN 200GGX	$165
OKILASER 440	585
OKIDATA 810	915
NEC Laser 95	1400
EPSON ActionLaser II	685
EPSON ML 320	295
PANASONIC KXP 1124i	299
PANASONIC KXP 2123	249
PANASONIC KXP 2180	169

NO
PASSING
ZONE

SUPPORT THROUGHOUT NORTHERN CALIFORNIA

YOU'LL PAY MORE ELSWHERE

TURN THE PAGE AND YOU WILL PAY MORE!



AND DRIVE OVER!

CALIFORNIA COMPUTER CO.

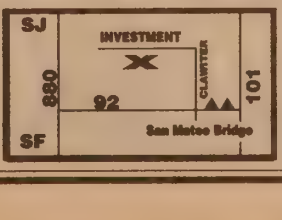
3401 Investment Blvd. #3
Hayward, CA 94545

(510) 785-3850

Fax (510) 783-5128

PRICES REFLECT CASH PRICES

Prices Subject to Change Without Notice. Not Responsible for Typographical Errors. Logo's are Property of Their Respective Companies



around your character. You can zoom out to a Map view that shows the entire city or region. You perform actions by clicking on simple controls, such as Use... and Do..., which display the choices currently available. For example, when you interact with another character, typical options are Greet, Inquire, Threaten, and Pay. When you command legions in battle, the options include Advance, Retreat, Halt, Attack, Rest, and Rally. I found the interface rather awkward. On a fast computer like a '486, the real-time action seems to unfold too quickly, and there is no easy way to slow things down.

Graphics and Animation: 9
Sound: 8
User Interface: 6
Overall Value: 7

The design team is based in Cambridge, England, and a British sense of humor permeates the game. The historical setting and details seem quite authentic, however.

Rome: Pathway to Power is described as role-playing adventure of "intermediate difficulty." This means that a beginner can actually enjoy it without having to depend totally on the hint book. In a gesture of truly Imperial magnanimity, Maxis sends you the hint book free when you mail in the registration card.

The game is installed from compressed files on two high-density 5.25" or three 3.5" disks, and takes up almost 5MB of hard disk space, including fourteen subdirectories! The illustrated manual's LXXVI pages include instructions in English, Spanish, French, German, and Italian (but not Latin). (MAXIS, 2 Theatre Square, Suite 230, Orinda, CA 94563-3346. 510/254-9700, 1-800-336-2947)

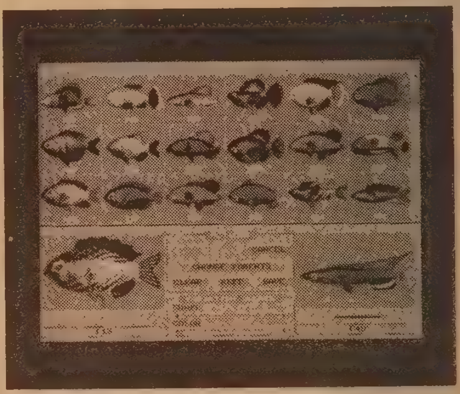
EL-FISH: THE ELECTRONIC AQUARIUM

Designed By: Dr. V. Pokhilko, A. Pajitnov
Published By: Maxis
For: MS-DOS (4MB RAM, 386 or higher processor, VGA graphics, mouse, most audio cards supported, math coprocessor recommended)
List Price: $59.95

Freshwater fish generally wear nature's standard camouflage—dark above, light below. But the beautiful creatures we call "tropical fish" evolved in richly diverse ecosystems like the coral reef, where bright colors and extravagant shapes provided some competitive advantage as recognition features, or perhaps to confuse predators. For humans, watching fish is a tranquilizer without adverse side effects. But salt-water aquariums are costly to equip and maintain, and there is growing concern over the environmental damage that the tropical fish trade has inflicted on the world's coral reefs and other fragile oceanic habitats.

Fortunately, the computer screen offers a low-maintenance virtual aquarium. Software can provide an unlimited supply of virtual fish. Many screen savers, like After Dark's delightful Fish! module, exploit our fascination with colorful swimming creatures. El-Fish is something much grander, an aquarium construction set, a work of art, and a stunning example of leading-edge software technology.

You design your fish tank by selecting a background and a gravel pattern. Then you select and place your plants, rocks, and other objects. To populate your tank, go fish! You can click anywhere on a map of an imaginary archipelago and the program will start "catching" an appropriate sample of fish.

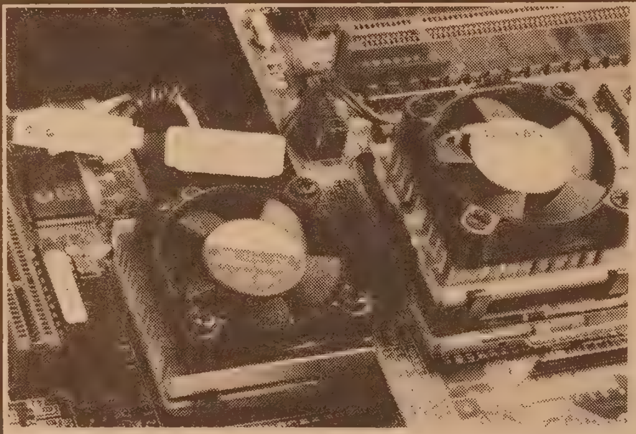


These are not real species, but rather the product of elaborate "genetic algorithms" that simulate fish-like appearance and behavior. You can "breed" fish by combining the genetic code of two dissimilar species. Each fish is animated as a series of 256 frames. Since this takes up awesome amounts of disk space, you can reduce your favorites to "roe"—simple text files of only a few kilobytes that can easily be archived or traded with other users. Screen shots can be saved in .PCX or .TIF format.

There are cute animated objects, like a cat's paw that takes an occasional swipe at your fish from the upper edge of the screen. If you have an audio card, the program can generate musical accompaniment in eight different styles. There is even a utility to import standard MIDI files. The illustrated 90-page *User's Manual* is supplemented by an 8-page installation and troubleshooting guide and a useful Read Me file.

The program requires massive computer

Continued on page 255



486DX CPU
Cooling Fan

- Special Design Allows 2 Different Ways Of Installation
  Installation is as easy as "snapping it on"
  Can be used with ZIF Socket by reversing clip!
- UL Approved Fan
- Quiet Operation Fan

SAVE UP TO 40%!

QTY 1-2	3-5	6-10	11-19	20-75	76-150
$15.00	$13.00	$11.00	$9.00	$7.75	$7.50

IM-LINK CORP.
2827 Whipple Road • Union City, CA 94587
Tel:(510) 489-2681 Fax:(510) 489-2666

Corporate, Government, and EDUCATIONAL Buyers

Purchase the easy way from our 22,000 item database.
Best price, best service.

COMPUTER QUICK

TEL:(415) 861-8330 FAX:(415) 861-8380

BEST PRICE, BEST QUALITY, BEST SERVICE

486DX2-66 256K VESA Local Bus

- VESA 32 bit VLB Motherboard
- Intel 80486DX2-66MHz CPU
- AMI BIOS
- 4MB RAM 70ns
- 212MB Western Digital 13ms Hard Drive
- TSENG ET4000 w/1MB Hi-Color
- Relisys 15"/SVGA Non-Interlaced Monitor .28dp
- Teac 1.2 & 1.44 Floppy Drive
- IDE 2FD/2HD Controller
- 2 Serial, 1 Parallel, 1 Game
- Mitsumi 101 Enhanced Keyboard
- Deluxe Mini Tower
- 200 Watt Power Supply

$1659

486DX-33 w/64K VESA Local Bus

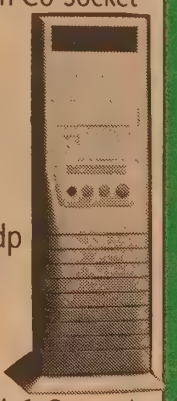
- VESA 32 bit VLB Motherboard
- Intel 80486DX-33MHz CPU
- AMI BIOS
- 4MB RAM 70ns
- 130MB Maxtor 15ms Hard Drive
- Trident SVGA w/1MB
- SVGA Monitor 1024x768 0.28 dp
- Teac 1.2 & 1.44 Floppy Drive
- IDE 2FD/2HD Controller
- 2 Serial, 1 Parallel, 1 Game
- Mitsumi 101 Enhanced Keyboard
- Deluxe Mini Tower
- 200 Watt Power Supply

$1159

THIS MONTH ONLY!

386DX-40MHz w/64K CACHE

- AMD 80386DX-40 CPU
- AMI BIOS & Math Co-Socket
- 4MB RAM 70ns
- 80MB Conner 15ms Hard Drive
- Trident SVGA w/512K
- SVGA Monitor 1024x768 0.28 dp
- 1.2 & 1.44 Floppy Drive
- IDE 2FD/2HD Controller
- 2 Serial, 1 Parallel, 1 Game
- Mitsumi 101 Keyboard
- Deluxe Mini Tower
- 200 Watt Power Supply



$829

WE USE HIGHEST QUALITY PARTS AND CASES

ZYXEL 16,800 bps FAX/MODEM U-1496 E

- IBM and Macintosh fully compatible
- External Modem/Fax
- CCITT V.32 bis
- V.22/Bell 212A
- V.21/Bell 103
- V.32 bis 14,400 bps
- V.42 and MNP4 Error Correction
- V.42 and MNP5 Data Compression
- 16,800 bps G3 Fax Send & Receive
- EIA Class II Fax Command Set

$350

Networking Services

- Free Consultation
- Custom Configuration
- Complete Turn Key Solution
- Custom Installation and Cabling
- Network Management
- Complete Technical Support

Networking Products

2 Station Starter Kit *$279*

- 2 Copies of Novell Lite or LANtastic
- 2 NE2000 16 bit Ethernet Adaptors
- 2 50 Ohm Cable Terminators
- 1-25 foot cable
- Additional Users $149
- 16Bit NE 2000 5 pack $299

ETHERNET CARDS

16 bit NE2000	$62
16 bit NE2000 Twist Pair	62
8 Ports Concentrator	240
16 Ports Concentrator	460

SOFTWARE

Netware Lite	$69
Lantastic AI 5.0	69

MULTIMEDIA

Mitsumi CD-ROM Drive 350ms	$189
Sony CD-ROM Drive 430ms	199
Mitsumi CD-ROM w/5 Topic Software	265
Texel DM-3024 CD-ROM 265ms	395
NEC CDR-74 CD-ROM	570
NEC CDR-84 CD-ROM 289ms	450
Sound Blaster Pro Deluxe w/CD	129
CD Bundle Software Kit	79

PRINTERS

HP DeskJet 500	385
HP DeskJet 500C	499
HP DeskJet 550C	699
HP LaserJet IIP+	785
HP LaserJet IIIP	949
HP LaserJet 4	1399
Panasonic	
KX-P 1123	205
KX-P 1124i	285
KX-P 2123	245
KX-P 2124	320

MONITORS

Sony CPD 1304S .25 dp	$520
Sony CPD 1604S .25 dp	925
Nanao F550i 17" 1280x1024 .28 dp	1010
Nanao F560i 17" 1280x1024 .26 dp	1659
NEC 3FGE 15" SVGA .28 dp	589
NEC 4FGE 15" SVGA .28 dp	689
NEC 5FG 17" SVGA .28 dp	1350
NEC 5FGE 17" SVGA .28 dp	1085
MAG 15F 15" 1280x1024 .28dp	530
MAG 17F 17" 1280x1024 .26dp	989
Viewsonic 5E 14" Non-Int SVGA .28dp	365
Viewsonic 6E Non-Int SVGA .28dp	306
Viewsonic 6FS 15" Low Radiation .28dp	518
Viewsonic 15" Low Radiation NI SVGA .28dp	620
Relisys 15" Flat Screen Non-Int .28dp	398
ADI 4G 15" 1280x1024 NI SVGA .28dp	415
CTX 14" SVGA Non-Interlaced .28 dp	288
14" SVGA .28dp	229

VIDEO GRAPHIC CARDS

Trident 8900C SVGA Card w/1MB	$54
Tseng ET-4000 w/1MB Hi-Color	69
Diamond Viper VLB 2MB VRAM	388
Diamond Speed Star Pro w/1MB	138
Diamond Stealth 24 w/1MB	140
Diamond Stealth 24VLB w/1MB	167
Fahrenheit Plus w/1MB	140
Fahrenheit VESA Local Bus w/1MB	159
Orchid P9000 VLB 2MB VRAM	299
ATI Graphics Ultra w/Mouse	212
ATI Graphics Ultra Pro w/2MB	372
ATI Graphics Ultra Plus w/2MB	284

ADD-ON CARDS

AT I/O (2S/1P/1G)	$15
IDE 2FD/2HD w/(2S/1P/1G)	15
IDE Local Bus IDE 2FD/2HD, 2S/1P/1G	89
Future Domain SCSI 2FD/2HD Controller	58
Adaptec SCSI 1542BK w/Kit	245
Adaptec 1742 BK w/Kit SCSI EISA Controller	419

Trackball (800dpi)	35
Serial Mouse	14
PS/2 Compatible Serial Mouse	18
Logitech Serial/Bus Mouse Man	58/65
Logitech Trackman	75

DRIVES

Teac 1.44/1.2MB Floppy Drive	$48/53
Colorado Tape Backup 120MB/250MB	145/195
Maxtor 130MB 15ms IDE	189
W.D. 212MB 13ms IDE	259
Maxtor 200MB 16ms IDE	269
W.D. 340MB 15ms IDE	369
Toshiba 887MB 12ms SCSI	989

MODEMS/FAX

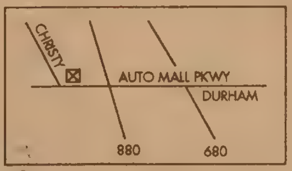
Zoltrix	
2400 Int. Modem	$32
9600/2400 Fax/Modem w/Bit Fax for Windows	48
9600/2400 Pocket Fax Modem	118
14,400 bps Int. Fax/Modem	149
14,400 bps Ext. Modem	219
Zyxel 16,800 bps Fax/Modem (external, IBM, MAC)	350

PC UPGRADES WELCOME

World-Net Microsystems, Inc.

(510) 770-1158 Fax (510) 770-1159
43172 Christy St. • Fremont, CA 94538
Hours M-F 9-6 Sat 10:30-4

We are inside Lincoln Executive Center



Prices subject to change without notice

RESOURCES

Calendar Of Events

CONFERENCES, SHOWS, AND OTHER SPECIAL EVENTS

MAY

May 29 The Computer Show & Sale. Sonoma Co. Fairgrounds. MarketPro. Call: (415)388-8893.

May 30 The Computer Show & Sale. Marin Civic Center. MarketPro. Call: (415)388-8893.

JUNE

June 5–6 Computer Show & Sale Featuring Seminar On How To Buy, Build, Or Upgrade Your Personal Computer. Cow Palace. Richard James. Call: 1-800-433-7469.

June 6–9 BG '93 Conference. Pebble Beach. The Burton Group. Call: 1-800-441-5506.

June 7–11 Xhibition '93. San Jose. Corporate Computing. Call: 1-800-234-XHIB.

June 8–10 Autodesk Expo '93. Anaheim. Autodesk. Call: 1-800-451-1196.

June 12 Computer Show & Sale Featuring Seminar On How To Buy, Build, Or Upgrade Your Personal Computer. Oakland Coliseum. Richard James. Call: 1-800-433-7469.

June 12 United Sysop's Conference. Los Altos. United Sysop's Association. Call: (408)739-9081.

June 13 The Computer Show & Sale. Sacramento Scottish Rite Center. MarketPro. Call: (415)388-8893.

June 14–15 Outsourcing Conference. San Francisco. DCI. Call: (508)470-3880.

June 14–17 Object World Conference. San Francisco. IDG World Expo. Call: 1-800-225-4698.

June 19 Computer Show & Sale. Santa Clara Co. Fairgrounds. Richard James. Call: 1-800-433-7469.

June 19 The Computer Show & Sale. Solano Co. Fairgrounds. MarketPro. Call: (415)388-8893.

June 20 The Computer Show & Sale. Concord. MarketPro. Call: (415)388-8893.

June 20–26 The 1st Annual MultiMedia Publisher's Conference. Waikaloa, Hawaii. Unlearning Foundation. Call: Mike Mathiesen, (408)423-8580.

June 26 Computer Show & Sale. San Mateo Expo Center. Richard James. Call: 1-800-433-7469.

June 26 The Computer Show & Sale. Sonoma Co. Fairgrounds. MarketPro. Call: (415)388-8893.

June 27 The Computer Show & Sale. Hayward Centennial Hall. MarketPro. Call: (415)388-8893.

JULY

July 10 Computer Show & Sale. Santa Clara Co. Fairgrounds. Richard James. Call: 1-800-433-7469.

July 11 Computer Show & Sale. Rancho Arroyo Sports Complex, Sacramento. Richard James. Call: 1-800-433-7469.

July 11 The Computer Show & Sale. Concord. MarketPro. Call: (415)388-8893.

July 17 Computer Show & Sale Featuring Seminar On How To Buy, Build, Or Upgrade Your Personal Computer. Oakland Coliseum. Richard James. Call: 1-800-433-7469.

July 18 The Computer Show & Sale. Sacramento Scottish Rite Center. MarketPro. Call: (415)388-8893.

July 24 Computer Show & Sale. San Mateo Expo Center. Richard James. Call: 1-800-433-7469.

July 25 The Computer Show & Sale. Hayward Centennial Hall. MarketPro. Call: (415)388-8893.

July 31–August 1 Computer Show & Sale Featuring Seminar On How To Buy, Build, Or Upgrade Your Personal Computer. Cow Palace. Richard James. Call: 1-800-433-7469.

AUGUST

August 1–6 SIGGRAPH '93. Chicago. ACM. Call: (312)321-6830. Email: info92@siggraph.org.

August 9–12 Groupware '93 Workgroup Solutions Conference And Expo. San Jose. The Conference Group. Call: 1-800-247-0262.

CLASSES, SEMINARS, AND WORKSHOPS

JUNE

June 1 Intro To FoxPro 2.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 1 Intro To Lotus 1-2-3 Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 1–8 Photoshop 1 & 2 Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

JUNE 12

BBS SYSOP CONFERENCE

Foothill College, Los Altos

United Sysop's Association is holding a free conference for BBS system operators and users at Foothill College, June 12 from 10:00 am to 4:30 pm. The conference will feature seminars on Setting Up Your First BBS, Telecommuting, and Multi-Node Solutions: OS/2 vs. DESQview. Call: (408)739-9081.

JULY 11

CALIFORNIA COMPUTER SHOW & SALE

Rancho Arroyo Sports Complex, Sacramento

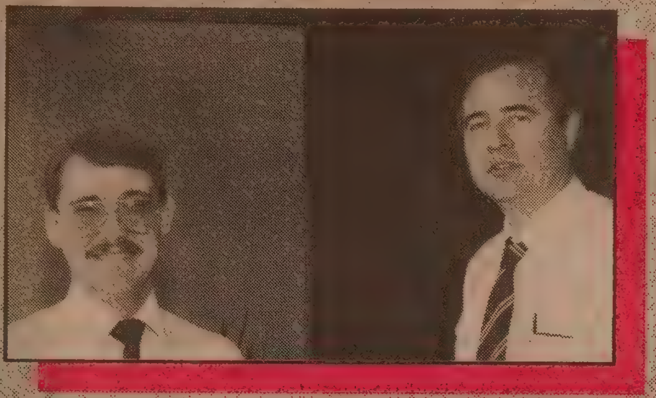
The California Computer Show & Sale is coming to Sacramento at the new Rancho Arroyo Sports Complex. This show features millions of dollars in brand new PC compatibles, hardware, software, and accessories. Admission is $6.00 and the show is open from 10:00 am to 4:00 pm. The Sports Complex is located at 9880 Jackson Rd. in East Sacramento. For more information call 1-800-685-1400.

SAN FRANCISCO PUBLIC LIBRARY ONLINE

The San Francisco Connection, a new computerized public access library catalog of the books, magazines, compact discs, and other library materials of the SF Public Library, is now available at all branch libraries and the Main Library. The online public access catalog, or OPAC, enables library users to find materials they need, regardless of location in the library system.

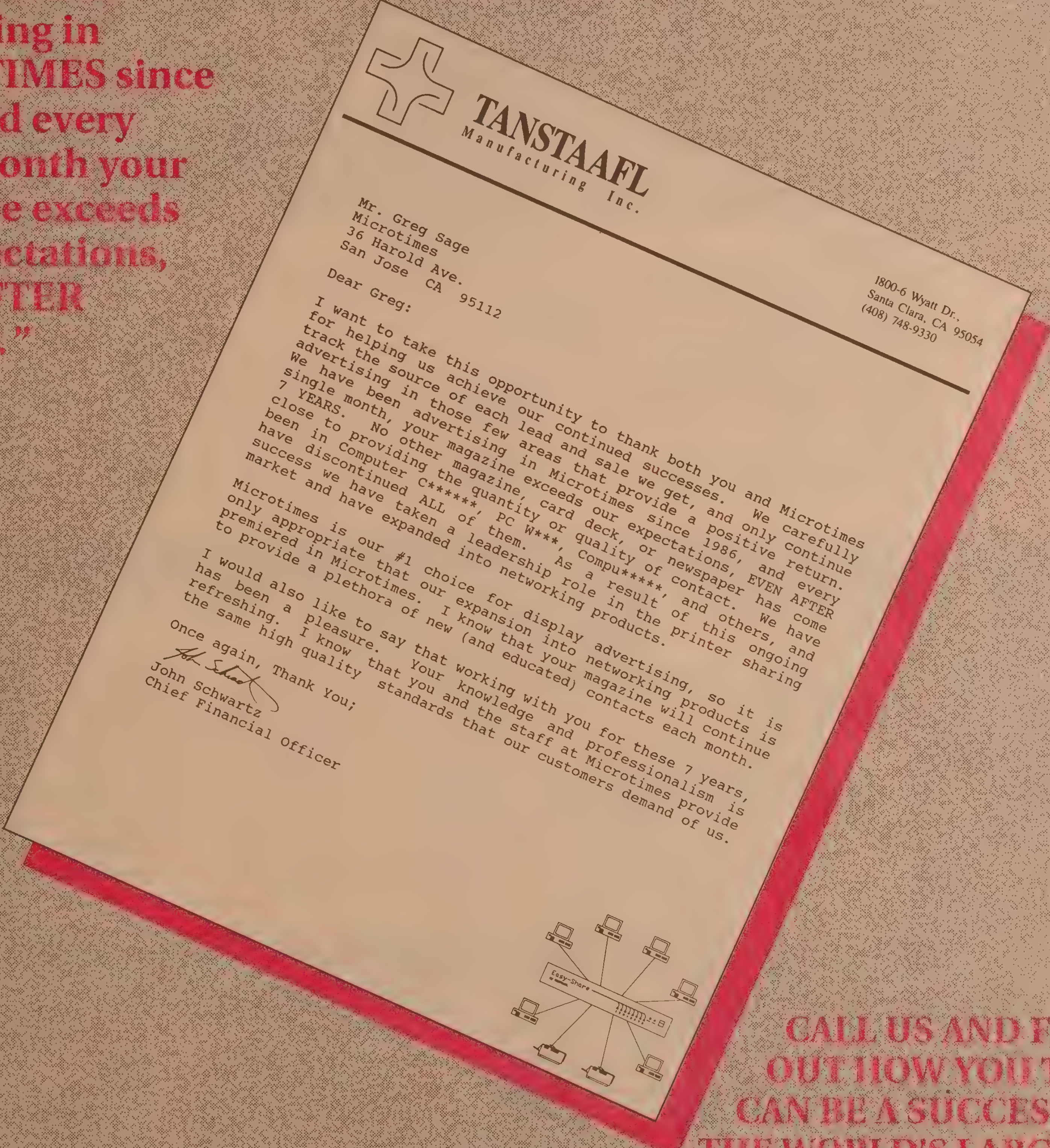
Online databases include the "INFOTRAC" databases of indexes to magazines, newspapers, and the Library of Congress catalog. Additional materials and databases will be added to the OPAC, and dial-up access from home, school, or office is anticipated in the near future.

Continued



"MICROTIMES is our #1 choice for display advertising...no other magazine, card deck or newspaper has come close to providing the quantity or quality of contact."

"We have been advertising in MICROTIMES since 1986, and every single month your magazine exceeds our expectations, EVEN AFTER 7 YEARS."



TANSTAAFL
Manufacturing Inc.

1800-6 Wyatt Dr.
Santa Clara, CA 95054
(408) 748-9330

Mr. Greg Sage
Microtimes
36 Harold Ave.
San Jose CA 95112

Dear Greg:

I want to take this opportunity to thank both you and Microtimes for helping us achieve our continued successes. We carefully track the source of each lead and sale we get, and only continue advertising in those few areas that provide a positive return. We have been advertising in Microtimes since 1986, and every single month, your magazine exceeds our expectations, EVEN AFTER 7 YEARS. No other magazine, card deck, or newspaper has come close to providing the quantity or quality of contact. We have been in Computer C******, PC W***, Compu*****, and others, and have discontinued ALL of them. As a result of this ongoing success we have taken a leadership role in the printer sharing market and have expanded into networking products.

Microtimes is our #1 choice for display advertising, so it is only appropriate that our expansion into networking products is premiered in Microtimes. I know that your magazine will continue to provide a plethora of new (and educated) contacts each month.

I would also like to say that working with you for these 7 years, has been a pleasure. Your knowledge and professionalism is refreshing. I know that you and the staff at Microtimes provide the same high quality standards that our customers demand of us.

Once again, Thank You;

John Schwartz
Chief Financial Officer

CALL US AND FIND OUT HOW YOU TOO CAN BE A SUCCESS IN THE WORLD'S LARGEST AND BEST READ REGIONAL COMPUTER MAGAZINE!

Northern California's Computer Magazine

MICROTIMES™

(510) 934-3700
(408) 244-4400

Calendar Of Events continued

June 2 Beginning dBASE IV Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 2 Intro To WordPerfect Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 2 Lotus 1-2-3 Class. Oakland. Action Computer Training Institute. Call: (510)562-5511.

June 3 Intro To Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 3 Windows Class. Oakland. Action Computer Training Institute. Call: (510)562-5511.

June 3–4 CorelDraw 3.0 Course. Sunnyvale. Goals of California. Call: 1-800-462-5763, ext. 6625.

June 3–4 Paradox PAL Language Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 3–4 PC Troubleshooting & Repair Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

June 4 Advanced Time Line 5.0 Class. San Francisco. Symantec Professional Services. Call: 1-800-786-8620.

June 4 Intro To DOS Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 5 Build & Upgrade An IBM PC Clone Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

June 5 How To Build Your Own 486 PC Computer For Under $750 Class. Los Altos. Foothill College. Call: (415)949-7722.

June 5 Intermediate Mac Course. San Francisco. Media Alliance/Computer Access. Call: (415)771-7133.

June 6–July 29 AutoCAD Level I Class. Santa Clara. The Cooper Connection. Call: (408)970-9383.

June 7 Beginning Paradox Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 7 Intro To UNIX System V Class. Oakland. MIS Services. Call: 1-800-300-4MIS.

June 7 Intro To WordPerfect For Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 7–9 NetWare v3.11: System Manager Class. San Jose. Abacus Training. Call: (415)974-7200.

June 7–11 NetWare Service And Support Class. San Francisco. Abacus Training. Call: (415)974-7200.

June 7–11 UNIX System V v4.2 Class. Oakland. MIS Services. Call: 1-800-300-4-MIS.

June 8 Aldus Persuasion For Windows Class. San Francisco. Abacus Training. Call: (415)974-7200.

June 8 Beginning Excel 4.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 8 Intro To Macintosh Networks Class. San Francisco. Abacus Training. Call: (415)974-7200.

June 8 Intro To Word Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 8–9 How To Build Your Own 486 PC Computer For Under $750 Class. Arcata. Humbolt State College. Call: (707)788-0249.

June 9 Intro To Excel Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 9 Intro To Macintosh Networks Class. San Jose. Abacus Training. Call: (415)974-7200.

June 9 LAN Fundamentals Class. San Francisco. Abacus Training. Call: (415)974-7200.

June 9 Lotus 1-2-3 For Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 9 Microsoft Access 1.0, Level 1 Class. San Francisco. Abacus Training. Call: (415)974-7200.

June 10 How To Build Your Own 486 PC Computer For Under $750 Class. Martinez. Martinez Adult School. Call: (510)228-3276.

June 10 Intro To Paradox Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 10 Lotus 1-2-3 Class. Oakland. Action Computer Training Institute. Call: (510)562-5511.

June 10–11 CorelDraw 3.0 Course. Sunnyvale. Goals of California. Call: 1-800-462-5763, ext. 6625.

June 10–11 Data Analysis Seminar. San Francisco. FirstMark Technologies. Call: 1-800-387-7335.

June 11 Windows Class. Oakland. Action Computer Training Institute. Call: (510)562-5511.

June 11 WordPerfect For Desktop Publishing Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 12 Video Signal Saga Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

June 14 Intermediate FoxPro 2.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 14 Intermediate Quattro Pro For Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 14–15 PC Troubleshooting & Repair Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

June 14–15 Time Line For Windows Class. San Francisco. Symantec Professional Services. Call: 1-800-786-8620.

June 14–16 NetWare v3.11: System Manager Class. San Francisco. Abacus Training. Call: (415)974-7200.

June 14–18 NetWare Service And Support Class. Walnut Creek. Abacus Training. Call: (415)974-7200.

June 15 Intro To Windows 3.1 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 15 Intro To WordPerfect Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 16 Macintosh Network Administration Class. San Francisco. Abacus Training. Call: (415)974-7200.

June 16 Windows Class. Oakland. Action Computer Training Institute. Call: (510)562-5511.

June 16 WordPerfect For The Legal Profession Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 16–17 CorelDraw v3.0 Class. San Francisco. Abacus Training. Call: (415)974-7200.

June 16 & 18 Novell System Supervisor 3.11 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 17 Intermediate WordPerfect For Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 17–18 CorelDraw 3.0 Course. Sunnyvale. Goals of California. Call: 1-800-462-5763, ext. 6625.

June 17–18 Local Area Networks: LANtastic And Novell Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

June 17–18 Q&A 4.0 Class. San Francisco. Symantec Professional Services. Call: 1-800-786-

Continued

AUTOCAD AT SF STATE

The only Autodesk Training Center™ in San Francisco

AUTODESK TRAINING CENTER®

MS DOS for CAD; Windows for AutoCAD; Intro and Intermediate AutoCAD; Customizing; 3D Features; AutoLISP; Animator Pro; 3D Studio; ASG Architectural; Softdesk AdCADD CIVIL; Solid Modelling with AME Release 2

SFSU

The New Downtown Center
425 Market Street, SF
One half block from
Embarcadero BART/MUNI

New classes start weekly and monthly, scheduled for weekdays, evenings and weekends *Call (415) 904-7738*

Save Time And $$ At MarketPro Shows

The COMPUTER Products SUPERSTORE Show & Sale At Your Door

Hours 10-5pm

Sun. June 13 - SACRAMENTO *Scottish Rite Center*
Sun. June 20 CONCORD *Centre Concord*
Sun. June 27 - HAYWARD *Centennial Hall*
Sat. June 19 - VALLEJO *Solano Co. Fairgrounds*
Sat June 26 - SANTA ROSA *Sonoma Co. Fairgrounds*
Sun. July 11 - SAN RAFAEL *Marin Civic Center*

1 Year Membership $25 - 2 Year Membership $35 Hardware, Software, & Peripherals

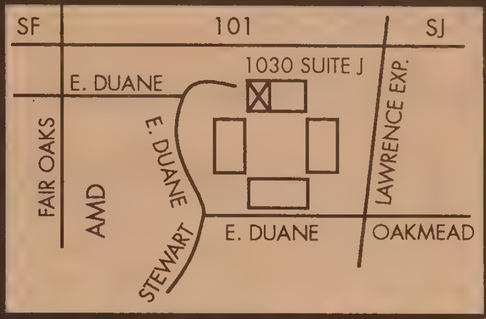
Admission $6 • FREE With Membership
Membership entitles you to over 80 shows a year in CA.
call MarketPro for Other locations (415)388-8893

Save Up to 90%

Highest Quality • Huge Selection
The latest Computer Equipment
Friendly, knowledgeable people

Don't Pay Retail $$ For Your Computer Needs!

GOLDEN VALLEY SYSTEMS



1030 E. DUANE AVE. STE. #J
SUNNYVALE, CA 94539
TEL: (408) 738-4921
FAX: (408) 738-4924

MONITOR SPECIALS!

- 14" SVGA, .28 dpi, 1024 x 768 Non-Interlaced **$249**
- 17" SVGA, .26 dpi, 1280 x 1024 Non-Interlaced **$799**

MAINBOARD SPECIALS!

- 486DX-33, 256K Cache, VESA Local Bus, Intel CPU, 4 MB, 70ns RAM **$525**
- 486DX-50 **$149** more
- 486DX2-66 **$235** more

SOUND CARD SPECIALS!

MEDIA CONCEPT 2.0 PLUS
- Digitized Voice Input & Output
- Full Duplex MIDI Interface
- CD-ROM Audio Connector **$69**

with Speakers **$75**

with Speakers & Microphone **$79**

CONVENIENT CREDIT AVAILABLE
- Low Monthly Payments
- Easy To Apply
- Fast Credit Decisions
- 90 Days Same As Cash

COMPLETE SYSTEMS

486DX2-66/256K VESA	$1459
486DX-50/256K VESA	$1379
486DX-33/256K VESA	$1225
486DX2-66/64K ISA	$1408
486DX-50/64K ISA	$1325
486DX-33/64K ISA	$1175
386DX-40/64K ISA	$926
386SX-33	$865

- 486 Systems with Intel CPU
- Mini-Tower Case w/200W Power Supply
- 4 MB 70ns RAM
- IDE 2 FD/2 HD Controller
- 2 Serial/2 Parallel/1 Game Ports
- 1.2 & 1.44 MB Floppy Drives
- 120 MB IDE Hard Drive
- 14" SVGA .28 dpi Monitor
- SVGA Card w/1 MB
- VESA Systems with VESA IDE & VESA SVGA Card

*One Year Warranty on Parts & Labor

*Customized Configuration Available

*72 Hours Burned-In Test

*Dealer Inquiries Welcome

DRIVES

1.2MB Teac Floppy Drive	**$49**
1.44 MB Teac Floppy Drive	**39**
80 MB IDE Hard Drive	**160**
120 MB IDE Hard Drive	**180**
130 MB IDE Hard Drive	**190**
170 MB IDE Hard Drive	**210**
200 MB IDE Hard Drive	**249**
200 MB SCSI	**230**
340 MB IDE Hard Drive	**394**

NOTEBOOK

386SX-20

- 2 MB RAM
- 80 MB HDD
- Carrying Case
- Mouse
- DOS
- Windows

$945

ADD-ON CARDS

16 Bit SVGA Video Card/1 MB	**$59**
16 Bit VGA Video Card/256K	**15**
2400 Baud Modem	**27**
9600/2400 Fax Modem	**48**
IDE Controller w/2S, 1P, 1G	**18**
IDE Controller Card	**13**

MOTHERBOARDS

486/66-256K	**$645**
486/50-256K	**549**
486/33-64K	**429**
386/40-64K	**159**
386SX/33	**85**
486/33-256K VESA LOCAL BUS	**479**

TERMS & CONDITIONS

1. 1 Year parts & labor warranty
2. Prices & availability subject to change w/o notice
3. Shipping, insurance and COD charges are additional & non-refundable
4. Return shipping must be insured and bearing a RMA # on the shipping label
5. Defective items replaced or repaired at our discretion
6. Not responsible for typographic
7. All returns are subject to 15% restocking fees and cover only computers, excludes peripherals. No refunds after 30 days.
8. Government & Corporate purchase orders are welcome

Calendar Of Events continued

8620.

June 21–23 ASME Development Course Series For Engineers In The Electronics And Computers Field. Santa Clara. American Society of Mechanical Engineers. Call: Raj Manchanda, (212)705-7413.

June 21–25 Multimedia: Hands-on Seminar. Los Angeles. Apple Computer. Call: 1-800-263-7017.

June 22 Intermediate Paradox Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 22–23 4th Dimension Class. San Jose. Abacus Training. Call: (415)974-7200.

June 22–23 PC Troubleshooting & Repair Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

June 22–July 27 Design For General Printing And Desktop Publishing Class. Oakland. Laney College. Call: (510)464-3263.

June 23 FileMaker Pro For Windows, Level 2 Class. San Francisco. Abacus Training. Call: (415)974-7200.

June 23 Intermediate Excel 4.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 23 Intermediate Paradox For DOS Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 23 Macintosh Network Administration Class. San Jose. Abacus Training. Call: (415)974-7200.

June 23–24 Microsoft Project For Windows Class. San Francisco. Abacus Training. Call: (415)974-7200.

June 23–July 14 Interactive Media Production 2 Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

June 24 How To Build Your Own 486 PC Computer For Under $750 Class. Kentfield. College of Marin. Call: (415)485-9305.

June 24 Intermediate Word For Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 24 Word 2.0 For Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 24–28 Networking Technologies Class. San Francisco. Abacus Training. Call: (415)974-7200.

June 25 Beginning Dataease Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 25 Intermediate Excel For Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 28–29 HyperCard: Stack Development Class. San Jose. Abacus Training. Call: (415)974-7200.

June 28–29 HyperCard: Stack Development Class. San Francisco. Abacus Training. Call: (415)974-7200.

June 28–29 Local Area Networks: LANtastic And Novell Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

June 28–29 OS/2 2.0 Advanced Class. Oakland. MIS Services. Call: 1-800-300-4-MIS.

June 28–30 NetWare v3.11: System Manager Class. Walnut Creek. Abacus Training. Call: (415)974-7200.

June 28–July 2 NetWare Service And Support Class. San Francisco. Abacus Training. Call: (415)974-7200.

June 29 Advanced FoxPro 2.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 29 Advanced Paradox Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

June 29 DOS/Windows: Fundamentals & Tools Class. Fremont. Value Integrated Systems. Call: (510)796-6465.

June 29 Intermediate Lotus 1-2-3 Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 29–30 4th Dimension Class. San Francisco. Abacus Training. Call: (415)974-7200.

June 30 IBM LAN Server 3.0 Course. Oakland. MIS Services. Call: 1-800-300-4MIS.

June 30 Intermediate WordPerfect Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 30 Lotus 1-2-3 Class. Oakland. Action Computer Training Institute. Call: (510)562-5511.

JULY

July 3 & 17 Local Area Networks: LANtastic And Novell Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

July 6 Build & Upgrade An IBM PC Clone Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

July 6 Local Area Networks: Concepts, Facilities & Lab Class. Fremont. Value Integrated Systems. Call: (510)796-6465.

July 6 Windows Class. Oakland. Action Computer Training Institute. Call: (510)562-5511.

July 6–13 Macintosh Basics Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

July 8–9 CorelDraw 3.0 Course. Sunnyvale. Goals of California. Call: 1-800-462-5763, ext. 6625.

July 8–9 PC Troubleshooting & Repair Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

July 9 Advanced Time Line 5.0 Class. San Francisco. Symantec Professional Services. Call: 1-800-786-8620.

July 9 Beginning Paradox For Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

July 12–13 Local Area Networks: LANtastic And Novell Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

July 12–13 Time Line For Windows Class. San Francisco. Symantec Professional Services. Call: 1-800-786-8620.

July 12–23 Interactive Multimedia Intensive Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

July 15–16 Q&A 4.0 Class. San Francisco. Symantec Professional Services. Call: 1-800-786-8620.

July 16 Advanced Macros Excel 4.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

July 19 Excel Class. Oakland. Action Computer Training Institute. Call: (510)562-5511.

July 20 Build & Upgrade An IBM PC Clone Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

July 20 Lotus 1-2-3 Class. Oakland. Action Computer Training Institute. Call: (510)562-5511.

July 21–28 Director 1 Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

July 22 Access 1.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

July 22–23 PC Troubleshooting & Repair Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

July 26–27 Local Area Networks: LANtastic And Novell Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

July 27 WordPerfect For Windows Class. Oakland. Action Computer Training Institute. Call: (510)562-5511.

July 28 Intermediate Paradox For Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

July 29–August 12 Computer Media Fundamentals Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

July 31 Build & Upgrade An IBM PC Clone Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

AUGUST

August 3–September 23 AutoCAD Level II Class. Santa Clara. The Cooper Connection. Call: (408)970-9383.

August 4–11 Director 2 Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

August 6 Advanced Time Line 5.0 Class. San Francisco. Symantec Professional Services. Call: 1-800-786-8620.

August 16–17 Time Line For Windows Class. San Francisco. Symantec Professional Services. Call: 1-800-786-8620.

August 18 DOS Basics Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

August 18–September 8 Interactive Media Production 1 Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

August 19–20 Q&A 4.0 Class. San Francisco. Symantec Professional Services. Call: 1-800-786-8620.

August 19–26 Macintosh Basics Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

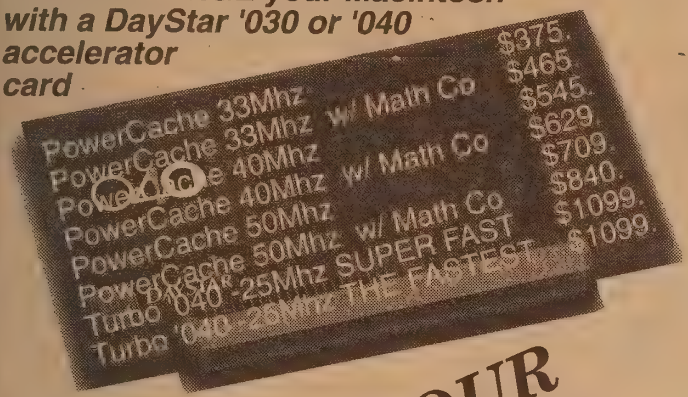
August 25–26 Supporting & Troubleshooting Windows 3.1 Seminar. San Francisco. Data-Tech Institute. Call: (201)478-5400.

M.P.
COMPUTER MICRO SYSTEMS

YOUR DIRECT SOURCE FOR SYSTEMS & PERIPHERALS!!

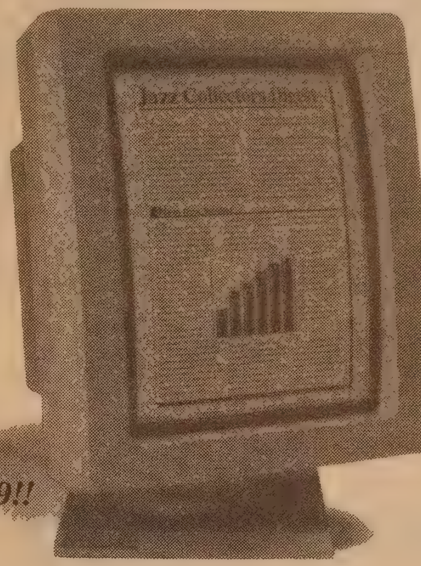
DAYSTAR
DIGITAL

SUPERCHARGE your Macintosh with a DayStar '030 or '040 accelerator card



PowerCache 33Mhz	$375.
PowerCache 33Mhz w/ Math Co	$465.
PowerCache 40Mhz	$545.
PowerCache 40Mhz w/ Math Co	$629.
PowerCache 50Mhz	$709.
PowerCache 50Mhz w/ Math Co	$840.
Turbo '040 -25Mhz SUPER FAST	$1099.
Turbo '040 -25Mhz THE FASTEST	$1099.

RASTEROPS®
THE ART & SCIENCE OF COLOR™



DISPLAY CARDS

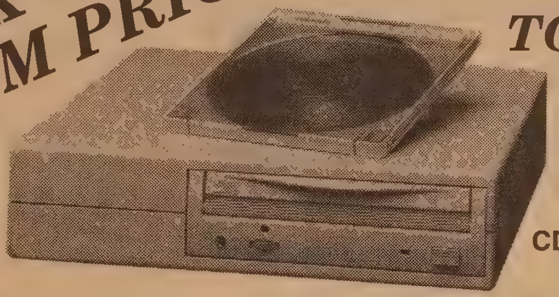
8XI -Afforable 8 bit for up to 21"	$479.
24mx-24bit up to 16" NEW PRICE	$639.
24STv-24bit with on screen video	$779.
PaintBoard Li -24 bit Accel. to 20"	$799.
8XLi-8bit Accellerated to 21"	$949.
MoviePak-30fps Frame Capture	$1599.
Editing Ace Suite-Great Reviews	$3359.

DISPLAYS

15" G/Scale Full Pge for OnBoard	$449.
21" GrayScale 2 Page Display	$1049.
16" Sweet 16 Color Display	$1139.
20" Multmode Display	$1325.
20" 2075M Multiscan Trintron	$1749.
21" Color 2 Page Display	$2349.

RasterOps 364 - 24 bit w/ Onscreen video, & Frame Capture - SPECIAL 399!!

CHECK OUT OUR CD ROM PRICES!!



TOSHIBA 3401 200ms CD Rom - 459.00!!

NEC External W/sw bundle	$629.
Chinon External w/6 CD bundle	$539.

CD-Rom S/W Titles AT COST!*

SUPERMAC

Spectrum 24 Ser. IV 24 bt Acc. to 20"	$799.
Spectrum 24 PDQ+ 24 bt Acc. to 21"	$1479.
Thunder 24 -Ultra Fast 24 bit	$2199.
ThunderStorm Pro	$2779.
17•T 17" Multi Mode Trinitron	$1049.
20•T XL 20" Multimode Trinitron	$2549.
SuperView-Video out for most PowerBooks, SE/30's, and Classics SPECIAL	$299.

WE CARRY ALL SUPERMAC ITEMS

M.P. COMPUTER IS YOUR NEW AND USED MACINTOSH HEADQUARTERS

Macintosh IIcx	4/40	SPECIAL	$749.
Macin[illegible]		NEW	$1379.
Macintosh IIvx	4/230	NEW	$1749.
Macintosh IIfx	4/160	NEW	$1999.
Macintosh Quadra	4/160	NEW	$3199.
Macintosh Quadra	8/230	NEW	$3769.
PowerBook 140	4/40	USED	$1499.
PowerBook 170	4/40	USED	$CALL
PowerBook [illegible]		SPECIAL	$2399.

MACINTOSH SYSTEMS
BUY • SELL • TRADE • NEW & USED

Call for pricing & availability.

M.P. NOW SELLS MS-DOS SYSTEMS!! CALL FOR PRICES!!

Hard Disk Solutions

Conner 212mb 12ms Internal	$319.
Quantum 240mb 10ms Internal	$347.
Toshiba 213mb PBook Internal	$535.
Micropolis 560mb Internal	$869.
Fujitsu 535mb 9ms Internal	$789.
Micropolis 1.2gb 3.5" Internal	$1319.

Monitors / Displays

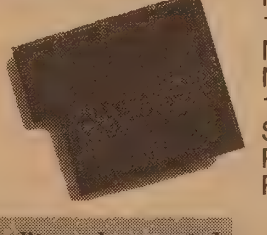
KEC MultiRes VGA for Mac & PC	$289.
Magnavox 14" RGB w/ Tilt/Swivel	$399.
1304S 14" Trinitron MultiSync	$589.
NEC 3fgx 15" MultiSync Display	$639.
NEC 4fg-E NEW 15" MultiSync	$CALL
1604S 16" Trinitron MultiSync	$1089.
Sigma Designs 17" Trinitron	$1295.
PinPoint 20" MultiMode Trinitron	$1749.
Philips NEW 20" M/Mode Trinitron	$2199.

E-MACHINES™

PowerLink Presentor for PowerBook	$449.
Futura SX 24 bit Accel. for up to 16"	$479.
Futura MX 24 bit Accel. up to 20"	$799.
T-16 II 16" MultiMode Trinitron	$1279.
T-20 20" MultiMode Trinitron	$2049.
T-16/SX Display and Card Bundle	$1749.
T-20/MX Display and Card Bundle	$2799.

MAC MEMORY

•Quadra 700, 900, 950	
4, 8 & 16 Meg	$CALL
•Centris, Quadra 800, & LC-III	
4, 8 and 16 Meg	$CALL
30 Pin (Std.) - for most Mac's	
1 Meg SIMMS	$29.
4 Meg SIMMS	CALL
•PowerBooks	
All Sizes Available	
•Macintosh Duo	
All Sizes Available	



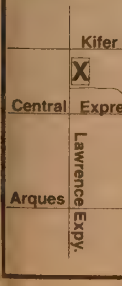
- *Major credit cards accepted*
- *Memory guaranteed forever*
- *Leasing options available*
- *Tech support for customers*
- *Int'l clients welcome to buy*
- *Fortune & Govt. P.O.s - OK*

UMAX

UC630 600dpi w/Photoshop v2.5	$1049.
UC840 800dpi w/Photoshop v2.5	$1229.
Transparency/Slide Adapter	$699.

Lapis

•Cards for Mac II family, LC, & SE/30	
ProColor Server 8 bit	$299.
ProColor Server 8 • 16 (16/8 bit)	$369.
ProColor Server 24 (24/8 bit)	$469.
•1 and 2 Page for Mac + to Quadra 800	
15" Full PagePortrait Display w/card	$479.
15" Full Page Grayscale w/card	$849.
19" 2 Page Monochrome w/card	$899.
19" 2 page Grayscale w/card	$1099.



M.P. - COMPUTER
Micro Systems

3004 Lawrence Expressway • Santa Clara, CA • 95051

Providing Quality Macintosh Solutions Since 1986

Phone: 408-481-9600 • Fax: 408-481-9604

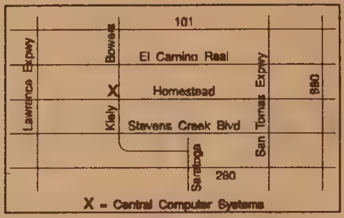
CENTRAL
COMPUTER SYSTEMS, INC.

WIDE SELECTION AT LOW PRICES

Since 1986
TEL: (408) 241-0185
FAX: (408) 241-0390

820 Kiely Blvd.
(Between Homestead and Kaiser)
Santa Clara, CA 95051

Mon - Fri: 9 AM - 7:30 P.M.
Sat - Sun: 10:30 AM - 6 P.M.
OPEN 7 DAYS



- No surcharge for Visa, Discover & MasterCard
- Govt., universities and qualified firms purchase orders accepted on approved credit
- Financing plan available OAC
- Reseller & quantity pricing available
- Prices are subject to change without notice and to stock on hand
- Not responsible for typographical errors
- Call for items not listed

I BASIC SYSTEMS

ORCHID
(CAD STATION)

Super Board
4 MB, TEAC 1.2 FD
Maxtor 130 MB HD, IDE Controller, 2S 1P
Mid Tower Case w. 220W
Mitsumi 101 Keyboard
EMC 1430 monitor 14" 1024x768 .28 NI
Fahrenheit VLB 1MB VGA
MS Serial Mouse, MS DOS 5.0 & WIN 3.1

VLB 486-33, 256K cache	1825
VLB 486-50, 256K cache	1995
VLB 486-DX2-66, 256K cache	2065

MICRONICS
COMPUTERS INC.

4 MB, TEAC 1:2 FD
IDE Controller, 2S 1P
Baby AT Case w/ 200W
Mitsumi 101 Keyboard
MS Serial Mouse
MS DOS 5.0
Windows 3.1

486-50 ISA 256K cache	1495
486-33 ISA 256K cache	1185
386-33 Gemini 64K cache	855
386SX-20 Gemini	675

NICE
(MADE IN U.S.A).

4 MB, TEAC 1.2 MB FD
IDE Controller, 2S 1P
Baby AT Case w. 200W
Mitsumi 101 Keyboard
MS DOS 5.0 & WIN 3.1
MS Serial Mouse

486-DX2-66 EISA 256K VLB	1585
486-50 EISA 256K cache VLB	1485
486-33 ISA VLB 256K cache	1095

IBM PS/Value Point

Desktop Case, 1.44MB FD,
IDE Contorller, Keyboard, Mouse,
SVGA (1024x768, 1MB), I/O ports

with IBM OS/2 :

486 DX2-66	8MB, 212MB HD	2439
486 DX-33	8MB, 212MB HD	1765
	8MB, 120MB HD	1585
486 SX-25	8MB, 170MB HD	1360
	8MB, 80MB HD	1180
386 SLC-25	2MB, 80MB HD	889

with Windows 3.1 & DOS 5.0 :

486 DX2-66	4MB, 212MB HD	2125
486 DX-33	4MB, 212MB HD	1660
	4MB, 120MB HD	1495
486 SX-25	4MB, 170MB HD	1235
	4MB, 120MB HD	1065

II HARDWARE

1. CD ROM

CD Caddy / Sony CD Caddy	8/10
Gallant Sound Card	85
Labtec Speakers	25
Koss Maximum DR Amplified Speakers	75
Koss Amplified Mini Speakers w. Equalizer	45
Turtle Beach 16 bit MultiSound	515
CREATIVE LAB	
Edutainment CD-16 Int Kit	499
Sound Blaster Pro Multimedia Kit w. 6 CD Ext	499
Sound Blaster Deluxe	89
Sound Blaster Pro Deluxe	129
Sound Blaster Pro w. Midi Kit	169
Sound Blaster 16 ASP	209
Video Blaster / Voice Blaster	315/75
Midi Kit	49
LOGITECH	
Soundman 16	149
MEDIA VISION	
Multimedia Upgrade Kit (w. Spectrum 16)	875
Midi Mate / w. Passport Design Trax	55/95
Pro Audio Studio 16	209
Pro Audio Spectrum 16	145
Pro Movie Spectrum	269
MITSUMI	
CD ROM w. controller	199
NEC	
CDR-74 280ms, 300KB/s, Ext	599
CDR-84 280ms, 300KB/s, Int	495
Interface Kit for PC	89
Multimedia Upgrade Kit Int / Ext	895/995
SONY (w/o software)	
CD 31A w. controller Int	235
TEXEL	
DM-3024 265ms, Int / w. controller	365/435
DM-5024 265ms, Ext / w. controller	445/515
Driver kit for CD-ROM Int / Ext	35/69
TOSHIBA	
3401B 200ms 300KB/s Int / w. controller	449/519
3401E 200ms 300KB/s Ext	569
Driver kit for CD-ROM Int / Ext	35/69
TRANTOR	
Mini SCSI Plus (Parallel to SCSI Adapter)	159
Music Box v.2	29
T130 Interface Kit	79

CD SOFTWARE Titles - See Sec. III

2. CASES

Baby AT w. 200W Power	69
Baby Tower w. 200W Power	75
Mid Tower w. 220W Power	95
Mid Tower w. 250W Power: Black/ White	139/129
Full Tower w. 250W Power	135
Full Tower w. 300W Power: Black/ White	199/189
Slim w. 200W (2 drive bay)	95
WorkStation w. 60W (1 drive bay)	95
Hard Disk Drive External Casing	
- 1 half ht or SCSI for Mac, 40W, w. Int cable	99
- 2 half ht or 1 full ht for PC or Mac, 60W	119
- 3 half ht or 1 full &1 half ht for PC or Mac,60W	139

3. CONTROLLERS

4 Floppies w. IDE controller for AT	45
COREL SCSI s/w / w. 8bit controller	75/95
IDE w. I/O for VLB	65
ACCULOGIC	
sIDE-2 (2 IDE HD only)	26
sIDE-3 (2 FD & 2 IDE HD)	29
sIDE-4 (2 FD & 2 IDE HD, 2S & 1P)	49
ADAPTEC	
1522K SCSI w. Kit (3MB/s)	159
1542C SCSI w. Kit (10MB/s)	249
1542C Plus w. ASW 500	315
1640 SCSI w. Kit for MCA	335
1742A SCSI EISA w. Kit (2F & 2H)	425
ASW-1410 ASPI MS-DOS Manager v3.0	69
ASW-EZ SCSI for DOS & WIN	69
ASW-310 Sy-Tos Plus (tape backup s/w)	99
AIR	
IDE w. I/O VLB	69
ALWAY TECHNOLOGY	
AL1000 Pro Corel	189
IN 2000 High Performance 16 bit SCSI	179
IN 2000 Pro Corel	219
AMI	
FastDisk cache SCSI EISA (up to 16MB)	495
FastLan Ethernet-SCSI VLB	465
DTC	
2290 IDE EISA	139
3280AS SCSI	105
3290AS EISA SCSI host adapter	479
6282 1:1 ESDI	125
7287 1:1 RLL	73
FUTURE DOMAIN SCSI Controller	
TMC 1660 for AT (H only)	119
TMC 1660 DNK for AT (H only) w. Kit	219
TMC 1680 for AT (4F& H,15MB/s)	145
TMC 1680 DNK for AT (4F & H) w. Kit	249
KOUWELL	
4 Floppies controller for XT,AT	33
4 Floppeis (2.88MB) w. 2 IDE	55
IDE controller	27
IDE controller w. AT I/O (2S 1P 1G)	34
IDE controller w. NS16550 chips (2S 1P 1G)	59
MICROSOLUTIONS	
CompatiCard IV: 4 Floppies controller (2 ext) 360K/720K/1.2MB/1.44MB/2.88MB FD	89
MYLEX	
DCE 376 EISA SCSI w.4MB cache	725
NCL America (w. on board Bios)	
538B IDE for AT (2HD & 2FD)	45
ORCHID	
VESA LBus IDE (2HD,2FD) w. AT I/O	79
PROMISE Drive Cache Controller	
DC 99M IDE 512K build in, upgrade 8MB	119
DC 200 IDE cache up to 16MB	129
DC 2032 IDE I/O cache up to 16MB	155
DC 2040 SCSI cache up to 16MB	225
- Bios chips & CD driver	39
DC 4030VL IDE VLB cache up to 16MB	185
ULTRASTOR	
ULT 12F/24 ESDI 32K cache	165
ULT 12C/1 ESDI 1MB cache	419
ULT 15C IDE 8MB 256K cache	195
ULT 14F ISA SCSI 32K cache	215
ULT 24F SCSI EISA 64K cache	385
ULT 34F VL Bus SCSI-2 32K cache	285

4. CPU

AMD386 DX-40	85
INTEL	
386 DX-25 / DX-33	85
486 DX-33 / DX-50	329/459
486 DX2-50 / DX2-66	439/549

4. DIGITIZERS

SummaSketch III 12x12, 4 or16 button	299
SummaSketch III 12x18, 4 or16 button	549

5. DRIVES

Frame for 3.5" Hard Drive and Floppy Drive	6
Removable Hard Drive Case for 3.5" HD	39
HARD DRIVES	
CONNER	
CP30084E 84MB 19ms IDE 64K	165
CP-30104 120MB 19ms IDE 3.5", 1" ht	185
CP30174E 170MB 18ms IDE 3.5", 1" ht	215
CP-30254 250MB 14ms IDE 64K 1" ht	279
CP-3544 544MB 12ms IDE	809
FUJITSU (5 years warranty by manufacturer)	
2624FA 525MB 12ms SCSI-1&2	815
2266FA 1.2GB 15ms SCSI-1 5.25" full	1115
M2652S 2.0GB 11ms SCSI-2 5.25" full	2095
MAXTOR	
MXT 7120A 130MB 15ms IDE 3.5"	195
MXT 7213A 213MB 15ms IDE 3.5", 1" ht	259
LXT 7345A 345MB 13ms IDE 3.5"	355
LXT 7120S 130MB 15ms SCSI	219
LXT 7213S 200MB 15ms SCSI 3.5"	309
LXT 340S 340MB 13ms SCSI	555
LXT 540S 540MB 8.5ms SCSI	859
MXT 1240S 1.2GB 8.5ms SCSI 3.5"	1395
PO-12 1.2GB 13ms SCSI	1015
PI-17S 1.7GB 13ms SCSI	1245
Optical Drives : Rewritable 1 GB 35ms SCSI Ext Tahiti II / 1 GB Cartridge Glass	2725/199
MICRO SOLUTIONS (External Hard Drive)	
40MB / 100MB (use printer port)	345/455
QUANTUM	
EIS 127AT 127MB 17ms IDE 32K cache	199
EIS 170AT 170MB 17ms IDE	215
LPS-240AT 244MB 16ms IDE 256K cahce	295
LPS-240S 244MB 16ms SCSI 256K cache	309
LPS-525S 525MB 10ms SCSI 512K cache	795
PRO-700S 700MB 10ms SCSI-2 512K	955
PRO-1225S 1.2GB 9ms SCSI 1.2M cache	1335
TEAC	
SD 3105 105MB 19ms IDE 1"ht	169
FLOPPY DRIVES	
SYQUEST	
SQ44e 44MB Ext w. controller & cartridge	479
TEAC (Floppy Drive)	
1.2MB 5.25" / 1.44MB w. frame	53/51
2.8MB 3.5" w. frame	89
Dual Floppy 1.2MB & 1.44MB	135

6. I/O CARDS

KOUWELL	
2S 1P 1G w. NS16550 chipset (XT, AT)	49
4 Serial ports card	79
AT I/O (2S 1P) / AT I/O (2S 1P 1G)	27/27
AT I/O (2S 2P)	33
AT I/O w. IDE (2S 1P 1G)	34
Printer card / Serial card (XT, AT)	15/15
QUICKPATH	
13 port I/O w. 4-16550UARTS (2 IDE, 4F, 4S, 2P, 1G)	115
STB 4-COM	
4 serial, 16 bit, w.16554, support COM 1-8, IRQ 2,3,4,5,10,11,12,15	109
SIIG	
2S 1P 1G w. 16550 chipset	49

7. KEYBOARDS

FOCUS	
FK2001 101 click	42
FK8000 111 w. calculator	45
FK9000 129 keys Programmable	65
NORTHGATE OMNI	
101S /101NI / 102	55/69/69
Ultra T or F	95
SIIG (click)	
Suntouch Jr. 84-key Mini	45
Suntouch 101	49
OTHERS	
BTC 84-key Mini	39
KeyCat II 101 w. trackball mouse	72
Keytronic 101	37
Maxi 101	35
Mitsumi 101	30
PT505C 101	27

8.MATH CO-PRO, OVERDRIVE

CYRIX	
83D87 - 25 / 33 / 40	85/85/99
Cx486 DLC	175
INTEL	
Math Co Processor 387 DX	85
Over Drive Processor	
- 486 SX16 / SX20	395
- 486 SX25 / DX25	495
- 486 SX33 / DX33	659
Cooling Fan (heat sink)	19.50

9. MEMORY CARDS

ACCULOGIC	
RAMpAT! up to 16MB(SIMM),16 bit, AT	99
SIMM-ply Ram 8/16 bit, 8MB max, XT, AT	145
SIMM-ply Ram 16 bit, 8MB max, PS/2-50,60	169
SIMM-ply Ram 32 bit, 8MB max, PS/2-70,80	179
INTEL	
Above Board w. 512K	159

10. MEMORY CHIPS

DRAM	
1 MB x 1 - 80 ns	3.99
64K - 100 ns / 256K - 80ns	1.39
256K x 4 - 80 ns	4.29
64K x 4 - 80 ns	1.65
SIMM	
16 MB x 9 - 70 ns	690
4 MB x 9 - 60 / 70 ns	180/155
1 MB x 9 - 60 / 70 / 80ns (3 chips)	39/37/35
256K x 9 - 70 ns	11
1 MB x 36 - 60 / 70 ns	160/150
4 MB x 36 - 70 ns	620
SIMM Mac : 1 MB x 8 - 80 ns	35
SIMM Mac : 4 MB x 8 - 70 / 80 ns	140/130
SIPP	
1 MB x 9 - 70 ns (3 chips)	39
COMPUTER MEMORY (3rd Party) :	
IBM	
- PS/2 50Z/ 55SX/ 65SX/ 70	
-- 2MB / 4MB	89/159
- PS/2 80 - 111/ 311/ 121/ 321	
-- 2MB	115
- PS/2 80 - A21/ A31/ A6	
-- 4MB	279
COMPAQ	
- Deskpro 386N/ 386S/ 20	
-- 2MB / 4MB	105/175

- Deskpro 386 - 20e/ 20/ 25e	
-- 1MB / 4MB	95/189
- Deskpro 486M	
-- 2MB / 4MB / 8MB	109/169/309
- LTE 286 -- 1MB / 2MB	79/109
- LTE 386S/ 386-20	
-- 1MB / 4MB card	89/195
- SLT 286	
-- 1MB / 4MB	99/259
- ProLinea 386 - 25ZS/ 25S	
-- 2MB / 8MB	105/375
- ProLinea 486 - 33/ 50/ 25S	
-- 2MB / 4MB / 8MB	95/159/299
KINGSTON MEMORY for	
Apple, AST, AT&T, Compaq, IBM, NEC, Sun	call
NOTEBOOK / LAPTOP (3rd Party)	
AST EXEC 4MB	139
COMPAQ	
- Contura	
-- 2MB / 4MB / 8MB	105/165/295
- LTE 20/ 25	
-- 2MB / 4MB / 8MB	125/189/340
IBM L40SX/ N33SX	
-- 2MB / 4MB / 8MB	125/189/330
MAC PowerBook 140/ 170	
-- 2MB / 4MB	135/169
NEC Ultra Lite SL-20/ 25/ 25C	
-- 2MB / 4MB / 6MB	109/189/239
Packard Bell 386SX	
-- 2MB / 4MB	155/259
Panasonic 170/ 270/ 370	
-- 1MB	79
TOSHIBA	
- T2200SX 4MB / 8MB	179/299
- T3200 3MB	189
- T3200SX 2MB / 4MB	105/169
- T3100SX 2MB / 4MB	109/167
- T5100/ T13100/ T1600 2MB	115
- T8500/ T5200 2MB / 8MB	125/339
LASER PRINTER MEMORY UPGRADE	
Jet Ram (3rd Party):	
EPSON EPL 6000	
-- 2MB/ 4MB	129/199
HP	
- Deskjet 500/500C	
-- 256K	69
- Laser Jet IIP+/ III/ IIIP/ IIID	
-- 1MB / 2MB / 3MB / 4MB	75/115/155/195
- Laser Jet II/ IID	
-- 1MB / 2MB / 4MB	95/135/205
PANASONIC	
- KX-P4410/ 4430	
-- 1MB / 2MB / 4MB	105/139/215
- KX-P4420/ 4450i	
-- 1MB/ 2MB/ 4MB	99/139/209
- KX-P4450 --1MB	139
- KX-P4455 --2MB	159
QMS	
- P-S 410	
-- 1MB / 2MB / 4MB	99/139/209
- P-S 815/ 825	
-- 2MB / 4MB	159/229
TEXAS INSTRUMENTS	
- Micro Writer --1MB	69
PACIFIC DATA:	
Pacific 4 for HP IIP+/ IIIP/ III/ IIID	
-- 1MB / 2MB / 4MB	89/129/209
1-2-4 Plus for HP II/ IID	
-- 1MB / 2MB / 4MB	115/155/235
Pacific 4 SIMM for HP 4/ IIISi/ XL300	
-- 4MB / 8MB	189/339
Pacific T for Epson 6000	
-- 2MB / 4MB	199/299
ProTracer	
-- 5MB / 8MB	385/535

11. MODEMS & FAX

ASAP TF-333 Phone & Fax Auto Switching	89
National Semi TyIN 2000 Answer/Fax	165
Micc Global Pocket Fax, Tripple 96	159
Adtech Micro Systems (DOS & WIN)	
Data Fax 9624Vi, MNP5	99
Hi - Per 96/144, MNP5	199
E-Tech	
Bullet modem 9696 MNP5 Int/ Ext	135/155
Ufomate Pocket Fax modem (w. Win/DOS s/w)	
- P1496MX / P9696MX	265/199
EVEREX	
Evercom 9600 v.42, v.32, MNP5 Int	195
FRECOM	
Fax 96 w. 1 Liner & Far Fetch Fax	115
Fax 96 & modem for DOS	99
HAYES	
Accura 2400 Ext (special)	(59)79
Accura 96 Ext + 96 Fax	239
Accura 14.4 Ext + 144 Fax	265
Optima 96 v.42, MNP 5 Ext	349
Optima 96 Ext + Fax 96	375
Optima 144 Ext + Fax 144	399
Pocket edition 2400 w. Smartcom EZ	129
Ultra 96 v.42, MNP5 Ext	549
Ultra 144 v.32bis, v.42, v42bis Ext	585
V-series SmartModem 9600 v.42, MNP5 Ext	499
Smart Com Exec/ WIN/Smart Com III	75/109/119
INTEL	
14400 EX v.32bis, v.42, MNP5 Ext	465
Faxability Plus/OCR for WIN trade-up	99
SatisFaxtion modem (w. FAXability s/w)	
- 100 Int send96 rec.48, 2400 modem	99
- 200 Int 96/24 v.42, MNP5	295
- 300 Int 96/144 v.42 (no scan port)	255
- 400 Int 144/144 v.42, v.32bis, MNP5	395
- 400e Ext 96/14.4, 4K data buffer	425
MEGAHERTZ	
PCMCIA 14.4 Fax modem Int	425
PCMCIA 96/24 Fax/modem Int	295
PRACTICAL PERIPHERALS	
PM14.4FX96 Int/ PM14.4FX96SA Ext	225/395
Mini Tower 96/96 Ext	209
Mini Tower 14.4/14.4 Ext	235
96/48 Fax 2400 Mini modem	95
PM2400 Mini pocket modem	119
FaxMe (turn HP Laser to Fax receiving)	175
US ROBOTICS	
Courier 144 v.32bis, v.42, MNP5 Int	375
Courier 144 v.32bis, v.42, MNP5 Ext	385
Courier 144 w. Fax Ext	399
Courier HST-DS 144 v.32bis, v.42, MNP Ext	725
Sportster 96 modem MNP5 Int/ Ext	159/169
Sportster 9696 FAX MNP5 Int/ Ext	169/179
Sportster 14.4 MNP5 Int/ Ext	179/199
Sportster 14.4/14.4 FAX MNP5 Int/ Ext	189/205
Sportster 14.4/14.4 Fax for Mac Ext	235
Shared Access Modem Sharing Kit	675
ZOLTRIX	
2400 baud modem w. MNP5 Int	39
96/24 send & rec. fax/modem w. MNP5 Int	69
96/24 fax/modem v.42, MNP5 Int	99
14.4/14.4 fax/modem Int.	189
Pocket send & rec. fax/modem Ext	119
ZOOM	
AFC Int	69
AFX Ext	89
FC9624V w. WinFax Lite Int	99
FX9624V w. WinFax Lite Ext	109
96/96 Fax/modem MNP5 Int/ Ext	209/239
144/144 Fax/modem Int/ Ext	219/249
96/96 w. WinFax Lite Int/ Ext	219/249
144/144 w. WinFax Lite Int/ Ext	229/259
ZY-XEL	
U1496B 16.8 voice 14.4 Fax WINs/w Int.	345
U1496E 16.8 voice 14.4 Fax WIN, LED Ext	349
U1496E+ upgradable to 19.2Kbps Ext	459

12. MONITORS

9" VGA Mono paper white 640 x 480	135
SIIG	
9" Mono paper white	115
STANDARD TECHNOLOGIES	
400-M VGA 1024x768 Paper white, 110/220v	115
EMC	
EM 1412 14" Mono amber, 90-260v	95
EM 1428 14" 1024x768 .28, 90-260v	279
EM 1430 14" 1024x768 .28 NI, 90-260v	315
EM 1439 14" 1024x768 .39	235
IBM PS/Value Point	
6312 14" 1024x768 .28, NI	399
6314 14" .28, NI w. Digital Pro Control	515
6319 15" Flat 1024x768 .28, NI	639
MAG (Auto Switch Power Supply)	
PMV1448 14" 1024x768 .28, NI	365
MX14S 14" 1280x1024 .26, Sony Trinitron	525
MX15F 15" Flat 1280x1024 .28, NI, MacII	585
MX17F 17" Flat 1280x1024 .26, NI, MacII	1055
Mac Adapter	25
MITSUBISHI	
HL6955SETK 20" 1280x1024 .31, NI	1745
Diamond Pro(TFS 6705) 17" 1280x1024 .26 NI, Trinitron, MacII, 100-240v	1075
BNC Cable	39
NANAO (100-240v)	
F340iW 15" Full Flat screen, 1024x768 .28	719
T560i 17" 1280x1024 .25, NI, MacII	1695
F550i 17" 1280x1024 .28, NI, Mac	1095
T660i 20" 1280x1024 .31, NI, Trin., MacII	2595
F750i 21" 1280x1024 .31, NI, MacII	2095
MacII cable adapter	69
NEC (120v)	
3FGX 15" 1024x768 .28, Mac	579
4FGe 15" Flat 1024x768 .28, NI, Mac	729
5FGe 17" 1024x768 .28 NI (no Accu color)	1175
6FG 21" Flat 1280x1024 .28, Mac	2395
NEC Monitor Lens (Anti-reflection, Anti-static)	
- for 4FG / 5FG / 6FG	74/115/185
FG / MacII cable adapter kit	19.50
PANASONIC (90-140v)	
C1381I 14" SVGA 1024x768 .28, Int, MacII.	325
C1395 14" 1024x768 .28, NI, MacII	435
C1991 20" 1024x768 .31, NI, MacII	1455
POWER II	
3E 14" SVGA 1024x768 .28, Int, 90-264v	285
SAMSUNG	
CSD5577 15" Flat 1024x768 .28,NI	455
CSF7487 17" 1280x1024 .26, NI, 90/264v	899
SEIKO (90-132v)	
CM1450 14" 1024x768 .25, NI	425
CM2050 20" 1024x768 .31, NI, Mac	1495
SONY	
1430S 14" 1024x768 .25, NI, 120v	599
1604S 17" 1024x768 .25, NI, 100-240v	995
2038S 20" 1280x1024 .30, NI	2295
VIEWSONIC	
4e 14" 1024x768 .28, Int, 110/220v	305
5+ 14" 1024x768 .25, NI, MacII	495
5e 14" 1024x768 .28, NI, MacII	395
6e 14" 1024x768 .28, NI	345
6FS 15" 1024x768 .28, NI, 90/264v	535
15 15" 1280x1024 .28, NI, Mac II	645
7 17" 1280x1024 .28, NI, MacII	995
17 17" 1280x1024 .28, NI, Mac II	1225
8 20" 1280x1024 .31, NI, MacII	1595
20 20" 1600x1280 .28, NI, Mac II	1895
Mac cable adapter	35

13. MOTHERBOARDS

386-33 w. 128K cache (no cpu)	125
386-40 w. 128K cache (no cpu)	129
486-33 w. 64K ISA/ w. 128K VLB(no cpu)	135/149
AIR	
486-33 / DX2-66 256K, 3VLB slots	235
486-50 256K, 3 VLB slots	235
486-50 256K EISA, 3 VLB slots	475
486-33 / DX2-66 256K EISA, 3 VLB slots	465
EISA upgrade to 512K cache	100
AMI	
Mark V 386-33 w. 64K	395
Super Voyager 486-33 256K VLB	875
Super Voyager 486-50 256K VLB	1095
Super Voyager 486 DX2-66 VLB	1245
Enterprise II 486-50 EISA 128K	1145
Enterprise III 486-33 256K VLB EISA	995
Enterprise III 486-50 256K VLB EISA	1195
Enterprise III 486 DX2-66 256K VLB EISA.	1345
IBM	
486SLC-50 64K cache ISA	429
LYNX (made in USA, w/o cpu)	
486DX - 33 / 50 / DX2-66 256K VLB	185
MICRONICS	
386SX-20 Phoenix BIOS (32MB max)	175
386-33 64K cache Gemini (32MB max)	355
486-33 256K cache ISA Gemini	685
486-50 256K cache ISA	995
486-50 256K cache EISA E2	1295
486-33 Local Bus w. 256K cache	795
486-DX2-50 Local Bus w. 256K cache	955
486-DX2-66 Local Bus w. 256K cache	1175
MiniBoard 486-33 256K cache ISA	645
MiniBoard 486-50 256K cache ISA	995
MiniBoard 486-DX2-50 256K ISA	885
MiniBoard 486-DX2-66 256K ISA	945
MiniBoard 486-DX33 256K EISA E3	895
MiniBoard 486-DX2-66 256K EISA E3	1195
4MB Piggy Back (up to 8MB)	299
16MB Memory Card	150
NICE (w/o cpu)	
486-33 / DX2-66 256K VLB	225
486-50 / DX2-66 256K Mini EISA VLB	295
486-50 / DX2-66 256K EISA VLB	465
ORCHID (w/o cpu)	
Superboard 486 (VLB for VGA & controller)	
- DX33/ DX50/ DX2-66 256K	245/265/245
QUICK-PATH	
486-50 w. 64K cache, 15ns ISA (no cpu)	295

14. MOUSE

JOYSTICK	
- Flight Control (thrustmaster)	69
- Warrior 5, Quick shot	14.50
- Weapons Control (thrustmaster)	85
Adapter kit	16.50
AGILER	
AGM-600E Serial 400 dpi	23.50
ATB-610 Serial Trackball	24.50
Keen	12.50
APPOINT (special)	
MousePen Pro	49
Thumbelina (portable)	49
GENIUS	
GM-F302 (3 button)	29
IMSI	
PC Stylus (Mouse & Trackball for CAD)	35
KENSINGTON	
Bus	115
Expert serial & trackball	99
LOGITECH	
Cordless	89
Dexxa Serial / First Serial	27/37
Fotoman Digital Camera for PC & PS/2	485
Mouseman Bus / Serial	64/59
Scanman 256 / w. OCR software	249/285
Scanman color - 16.8 million colors	545
Trackman Portable / Trackman Combo	99/75
MICROSOFT	
Mouse w. WIN 3.1	149
Ball Point (portable)	119
Bus 400PPI / Serial 400PPI	85/59
Bus 2.0	89
Serial 2.0 w. PS/2 port	79
Serial 2.0 w. 9 to 25 pin adapter	79
MOUSE SYSTEMS	
New Point (trackball for laptop & PC)	54
Little Mouse PC (2 button optical) serial	29
Omni (2 button) J hook	25
PC III Serial (optical) / Mouse Pad	59/19
PC Trackball II	55
Page Brush - color scanner	399
Pen Mate	155
Serial Bus Card (9 IRQs)	24
The New Mouse 400CPI (3 button)	55
The White Mouse w. Power Panel	39

15. NETWORK

Dyna DL 2000 card	215
MAILMAN 2.0 (10-user for Novell NetWare)	199
Mainlink II 3270 Emulation IBM & IRMA	369
SilverNet Software / Starter Kit	79/425
3COM	
3C503 8 bit coax / TP ethernet	179/199
3C503-16 Etherlink II 16 bit coax / TP	169/179
3C507 16 bit coax ethernet / 5 pack	279/1250
3C507-TP 16 bit TP ethernet / 5 pack	299/1450
3C509 Etherlink III coax / 5 pack	139/625
3C509 Etherlink III TP / 5 pack	145/650
3C509 Combo	155
3C579 Etherlink III EISA coax / TP	245/249
3C529 Etherlink III for MCA	245
3C529 TP Etherlink III for MCA	249
3C621 Link Builder 10 BT (12 port)	745
3C623 Single port BNC Module	125
TokenLink III 16/4 ISA/ MCA/ EISA	465/495/699
Link Match SNMP/NLM software	269
ALLIED TELESIS (CentreCOM)	
AT-1500T TP / AT-1700T	79
AT-1500BT / AT-1700BT (TP+BNC)	99
AT-1500FT / AT-1700FT (TP+Fiber optic)	275
Transceiver MX10S (BNC to AUI)	49
Transceiver 210T (AUI + TP)	49
10 BaseT 4 port Repeater :	
- MR410T (external power supply)	355
- MR420T (internal power supply)	299
ARTISOFT (Lantastic)	
- FREE UPGRADE to 5.0	
AE-2 Ethernet starter Kit v5.0,10Mbps	459
AE-2 Ethernet starter Kit v5.0 WIN	520
AE-2 Ethernet adapter / for MCA	199/275
AE-3 Ethernet starter kitv4.1,10Mbps.	499
AE-3 Ethernet starter kit v4.1, WIN	535
AE-3 Ethernet adapter.	235
2Mbps adapter	145
AE-1/T 8bit 10Base-T adapter.	135
AE-2/T 16bit 10Base-T adapter.	210
64K RAM upgrade for AE-2, AE-3 adapter	45
AI software v5.0 DOS / 6 pk / 12 pk	75/395/720
AI software v5.0 WIN / 6 pk / 12 pk	85/455/840
Articom (LAN modem sharing s/w)	239
Artiscribe System s/w	299
Artiscribe System HW + s/w Kit	345
Central Station Connectivity Processor 5.0.	399
Dial Up Connection	69
Ethernet software Kit v5.0 DOS / WIN	79/119
Lantastic Z (2 stations) v5.0	89
Lantastic for Netware (Network O/S)	139
Lantastic for Mac s/w Kit	339
Lantastic for Mac HW + s/w Kit	549
Lantastic Print Server Station Ware	69
Netware Print Server Station Ware	69
Network Eye (Remote Control Access)	129
NR 2000C (BNC only)	175
NR 2000T (RJ 45 only)	179
Peer-Hub 10Base-T concentrator	270
Peer-Hub AUI Interface Kit	270
Remote Boot ROM for AE-2, AE-3 adapter	45
Sounding Board adapter Kit	72
ATTACHMATE	
3270 coax adapter for AT/MCA	469
Extra! for WIN	349
Extra! Extended for DOS	349
CASTELLE	
FaxPress (Network Fax Server)	
- Novell 1 line Ethernet coax	2595
- Novell 2 lines Token Ring 16/4Mbps	3225
JetPress (Network Print Server)	
for HP II,IID,III,IIID, coax / TP	429
LANPress (Print Server) connects up to 4 printers	
- Ethernet Thick/Thin coax (1P 3S)	475
- Ethernet Thick/Thin coax (2P 2S)	625
- Ethernet 10BaseT (1P 3S) / (2S 2P)	475/635
CC:MAIL	
cc:Mail DOS v4.0	199
cc:Mail WIN platform	339
cc:Mail 10-user / 25-user pack	239/579
cc:Mail Gateway v3.21	879
cc:Mail FAX v1.2	1350
COMPULAN	
Ethernet	
- 8 bit E100 coax (special)	69
- 8 bit ET500 TP	75
- 16 bit E200 coax	89
- 16 bit E210 coax & TP, BUS master	159
- 16 bit E300 coax dual-port shared mem.	129
- 16 bit ET600 TP	95
- 16 bit E650 coax & TP, surface mount.	125
- 16 bit E200/2 coax for PS/2 MCA	145
- 16 bit E800/2 TP for PS/2 MCA	155
- 32 bit E911 Bus Master for EISA	315
- 32 bit E950 coax & TP, EISA Bus.	259
- Boot Prom (for E100/ E200/ E300/ E600)	25
- Hub 8 port TP +1BNC +1 cascading	285
- 12 port TP +1BNC +1 AUI +1 cascading	465
- Pocket adapter for coax / TP	159
Arcnet	
- 16 bit for XT/AT Star Topology	69
- 16 bit for XT/AT Bus / TP	79/79
- 16 bit "4-in-1" Turbo Star & Bus (w. NCR 90C98A ASIC)	99
- 4-port Arcnet Passive Hub	19
- 8-port Coax Stackable Active Hub	159

CENTRAL
CENTRAL COMPUTER SYSTEMS, INC.
WIDE SELECTION AT LOW PRICES

Wide Selection At Low Prices

820 Kiely Blvd. Santa Clara, CA 95051
Tel.: (408) 241-0185 FAX: (408) 241-0390

SEE MORE ON THE NEXT PAGE

FARALLON

PN381 PhoneNet w.Timbuktu for WIN	259

GATEWAY COMMUNICATION

G/Ethernet 16 coax / 32 bit	99/350

INTEL

EtherExpress Flash LAN Adapter (combo)	155
EtherExpress 16 coax/16 TP	135/139
EtherExpress 5 pack coax/ TP	545/555
EtherExpress 16 MCA / 16 MCA TP	179/189
EtherExpress 32 EISA	439
12 port Hub EtherExpress ISA Adapter	565
12 port Hub EtherExpress EISA Adapter	645
LAN Protect 1.5 (virus protection)	685
LAN Sight 3.0 Netware Utility / Monitor	299
LANSpool s/w 386 NLM v3.5.8	425
NetPort II Thin /Thick Ethernet	519
NetPort II 10BaseT	529
NetPort II Token Ring	759
NetSatisfaxtion V.2 (s/w for NOVELL)	955
RJ45 Harmonica	55
TokenExpress 16/4 ISA/ EISA/ MCA	535/685/535

NOVELL

NE1000 coax ethernet (special)	99
NE2000 plus coax ethernet / 5 pack	145/625
NE2000-TP plus TP ethernet / 5 pack	139/599
NE2000 Netware Lite starter kit	385
NE2000 Plus / 5 pk	155/675
NE3200 Eagle coax EISA	675
NE3200 EXOS coax EISA	625
NTR 2000 Token Ring	435
Eagle NE10T 4 Port Hublet	225
EPROM for NE2000	35
EXOS NE10T-Hub, 8 Port (8 TP + 1 coax)	335
Netware Lite 1.1 + DR DOS 6.0	65
Netware 2.2	
- 5 / 10 / 50 / 100-user	489/1089/1995/2955
Netware 3.11	
- 5 / 10 / 20-user	599/1345/1885
- 50 / 100 / 250-user	2650/3859/6885
Netware 4.0	
- 5 / 10 / 25-user	935/2095/2895
- 50 / 100 / 250-user	3925/5495/9695

SMC (Western Digital)

Ethercard Plus Elite 8 bit coax	115
Ethernet Plus Elite 16 coax / 16 TP	139/145
Ethernet Plus Elite 6 pack 16 coax/16 TP	725/750
3016 16bit coax / 16bit TP	145/149
Ethercard Elite 16 combo (coax/10 BaseT)	175
Ethercard Combo 5 pack	840
Ethercard Plus/A for MCA / TP	215/219
Ethernet Elite 32 bit coax / TP	650/660
Netware Boot ROM for ethernet	34
8 Port Concentrator (8TP+1AUI)	339
12 Port Concentrator(12TP+2AUI+1BNC)	595
Token Ring 16/4 ISA / MCA	379
WD-8003 EP Ethernet Plus Elite 8bit coax	49
WD Lan-ETP 8bit TP (cable included)	39
WD Lan-10T/A for MCA (cable included)	65

XIRCOM (Pocket Adapter)

PE2-10B2 coax	225
PE3-10B2 coax	295
PE3-10BT TP	299
PE3-10BC TP combo	329

CABLES & ACCESSORIES

Twisted pair cable, TP 4-pair, PVC, Level 3	
- 1000' / 500' / 200'	89/55/35
10 BASE-T cable, 1000' Level 3 plenum	165
RG58 cable, 1000'	109
Belden 8259, RG58, 1000'	165
Transceiver AUI ---> TP (coax to RJ45)	69
Transceiver AUI ---> BNC (thick to thin coax)	69

16. POWER SUPPLIES

AMERICAN POWER CONVERSION (UPS)

APC-400 Smart-UPS (286, 386 WS)	309
APC-600 Smart-UPS (386, 486 FS)	399
APC-900 Smart-UPS (386, 486, FS & WS)	639
APC-1250 Smart-UPS (multiple FS & WS)	799
APC-450 Back-UPS 286, ps/2, 386	235
APC-600 Back-UPS 286, 386 FS	285
APC-800 Back-UPS 800RT, 2-4ms, 15 mins	565
APC-750 On-Line UPS (286, 386, 486 FS)	1365
APC-1500 On-Line UPS (multiple servers)	2499
APC PowerChute Plus for Novell	79
APC UPS Monitoring Board for NetWare	69
Power Doctor (DOS) I/F Kit for Smart-UPS	79

GENERAL

200W for XT / UL	48
250W for Baby AT/ Baby or Mid Tower	48
250W for AT	48
250W for Full Tower	55
300W for Full Tower	79
550W for UPS	279
1200W for UPS	659

PC POWER COOLING

Standard 220 for desktop / full tower	85
Silencer 270	
- for slim, baby or mid tower	165
- for AT desktop / full tower	175
Turbo-Cool 300	
- for slim	165
- for desktop / full tower	185
Turbo-Cool 450 for desktop / full tower	345
InnerSource 2210 UPS for full tower, Int, 95-132v, 220W DC, 100W AC, =550VA Ext UPS	299
Novell Netware Interface	
- for InnerSource 2210 UPS	55

TRIPP LITE

BC 500 Lan (UPS, 350W)	215
BC 900 Lan (UPS, 650W)	365
Omni 450 Lan (UPS 325W + Line Regulation)	295
Omni 600 Lan (UPS 425W + Line Regulation)	385
Omni 900 Lan (UPS 650W + Line Regulation)	545

17. PRINTERS

CANON

BJ-200	(after rebate 299)/349
BJ-300 desktop	349

CITIZEN

GSX 145 (24 pin, 132 column)	355
- Color Option for GSX 145	65
- Color Option for GSX 130	45
GSX 230 Fonts & quiet	249
GSX 240 Scalable Fonts & quiet	295
PN48 notebook, 1ppm, 2lb, battery, case	309

MICROTEK

TrueLaser MTP-306 6ppm, 2MB, 35 fonts	1195

HP (HEWLETT PACKARD LaserJet w. toner)

Desk Jet 500 / 500C / 550C	389/499/699
Laser Jet IIP+	769
Laser Jet IIIP	849
Laser Jet 4 / 4M /4L / 4Si	1359/1865/685/3295

LASER MASTER

Win Printer 800 (Postscript)	1095
Win Printer XL600 11x17, 600x660PPI	2395
WinJet 800 Postscript for HP II,IID,III,IIID	475
WinJet 1200 Postscript for HP 4	775

PACIFIC DATA PRODUCTS

ProTracer Inkjet, A to C size output, 360dpi, i960RISC processor, 512K, 45dBA	1125
- Postscript emulation card	375
- HP-GL emulation Card	315
- Sheet Feeder I / II	135/115
- Ink Cartridges	19.50

PANASONIC

1123 /1124i / 1624	195/259/349
- Auto Sheet Feeder for 1124 KX-P36	120
2023 24pin, quiet printer	199
2123 24 pin, 43.5dBA, color capability	239
2124 24 pin, 43.5dBA, color capability	319
2624 24 pin, quiet printer, 46.5 dBA	375
2180 9 pin, 45 dBA, color capability	159
Color upgrade Kit KX-PCK11	49
Single bin cut sheet feeder KX-PT10	95
32K Buffer dot matrix printers KX-P43	65
Serial interface card PS-13	75
4410 Laser, 512K, 5ppm	599
- Corona KX-PCR3	45
- Developer KX-PDP4	105
- Drum KX-PDM4	89
- Extra cassette KX-PKC2	45
- Fuser unit KX-PFS5	105
- Optional second cassette KX-P495	135
- Toner KX-P453	35
- Fonts Card KX-P47x (for Lasers)	95
4430 Laser, 1 MB, 5ppm	685
- Accessories same as 4410	
4420 Accessories	
- Developer KX-PDP2	95
- Drum KX-PDM2	99
- Envelope Tray KX-P431	59
- Legal Tray KX-P425	45
- Ozone Filter KX-PFT2	26
- Toner KX-P451	39
4450 Accessories same as 4450i	
4450i Laser, 11ppm	995
- Developer KX-PDP1	95
- Drum KX-PDM1	145
- Envelope Tray KX-P430	59
- Legal Tray KX-P420	45
- Ozone Filter KX-PFT1	29
- Toner KX-P450	35
4455 Postscript, 11ppm	1695
- others same as 4450i	

QMS (Adobe Postscript)

QMS-PS 410 4ppm, 2MB, 45 Fonts	1335
- Envelope / Legal / Letter Tray	69/69/69
- Lower Cassette w. Letter Tray	149
- Toner	95

SEIKO

Smart Label Printer Plus(IBM/APPLE)	149
Smart Label Printer Pro	245
Box of Label (2 rolls per box)	10.95

TEXAS INSTRUMENTS

Micro Writer PS17 / PS35 5ppm	935/1195
XLPS 17 16ppm	1895
- Apple Talk Kit	99

Laser Printer Accessories:

COMPUTER PERIPHERAL

Jet Page (for HP II)	195

HP

Envelope Feeder for IIID (special)	(245)
Optinal 500 sheet Legal Letter A4 (Jet 4)	279
Envelope Power Feeder 75 sheet (Jet 4)	279
Lower Cassette w. letter tray for IIP, IIIP	149
Toner for Jet II, III	79
Toner for Jet IIP, IIP+, IIIP	66
Toner for HP4	109
Postcript for Jet 4	399

IQ ENGINEERING

True Type Master Library	29
Super Cart. 2 for HP II, IID, IIP, IIP+, III, IIID	249
Super Cartridge 2 & 2LC	269
Super Cart. 3 Pro+ for HP III, IIID, IIIP, IIISi	249
Super Cart. 3 Creative Collection for III family	249
Desk Jet 500 / Desk Jet Plus Professional	99

PACIFIC DATA

25 in One! (for Deskjet 500)	99
25 in One! III	
- for HP II, IID, IIP, IIP+, III, Microtek	245
Complete Font Library for HP III, IIID, IIIP	255
Font Bank for all HP Laserjet (New) stores soft fonts, 0.75MB / 1.5MB	205/269
Headlines Cartridge for HP II, IID, IIP	185
Paicfic Connect XI	
- For HP II, IID, III, IIID :	
-- 5 port 256K / 1MB (4S, 1P)	319/389
-- 10 port 256K / 1MB (10S)	449/519
- For HP 4, IIISI, Paint Jet XL300 :	
-- 7 port 1MB / 4MB (6S, 1P)	449/649
-- 10 port 1MB / 4MB (10S)	519/719
Pacific Page & 2MB (Postscript for HP II)	389
Pacific Page II / XL (Postcript for HP II)	719
Pacific Page P.E.(HP IID,IIP,IIP+,III,IIID,IIIP)	279
Pacific Page P.E. & 2MB	405
Pacific Talk	179
Pacific Page PE XL (HP IIP, IIP+, III, IIID, IIIP) Postscript w. 2MB & accelerator board	719
Plotter in a Cartridge (HP II)	225
Plotter in a Cartridge P.E.	
- for HP IID, IIP, IIP+, III, IIID, IIIP	225

PELICAN All type ribbons	visit us

18. SCANNER

TAMARACK

ArtiScan Flatbed 24bit color 256 gray levels	
- w. Publisher 600/800/1200 dpi	895/1145/1775
- w. Pub. & OCR 600/800/1200 dpi	945/1195/1825
- w. Photostyler 600/800/1200 dpi.	995/1245/1875
Slide Scan Kit (transparency, slide, X-ray)	
- 600/ 800/ 1200 dpi	525/525/595

MICROTEK

Scan Maker IIXE w. PhotoStyler	1150

Hand scanners	**see Logitech in # 14**

E-TECH

4256G 256 gray scale (w.OCR)	99(115)
4200C 256/4096 color (w.OCR)	269(289)

19. TAPE BACKUP

ARCHIVE

Python 2GB DAT SCSI 512K Int	1095
Python 4GB DAT SCSI 512K Int	1275
Viper 2150S 150MB SCSI 6MB/m Int	385
Viper 2525S 525MB SCSI 6MB/m Int	545

COLORADO

DJ-10 (120MB) QIC-40 w. cable	148
DJ-20 (250MB) QIC-80 w. cable	205
- AB-11 Ext tape port	45
- Cable (2 Floppies & tape back up)	9
- FC-10 Controller	95
- KE-09 Ext Kit w/o controller	75
- TC-15 controller w. data compression	195
- Unix/ Xenix driver for DJ-10, 20	99
PowerTape PT-25 2GB 300KB/s Int	995
PowerTape PTE-25 Ext	1125
PowerTape PT-50 4GB 300KB/s Int	1525
PowerTape PTE-50 Ext	1655
Trakker 250MB Ext (printer port)	399
Trakker 120MB Ext (printer port)	299

HILITE (Archive s/w included)

California 250MB, 3.5", 1" ht.	175

IOMEGA

Tape 250MB insider, 3.5", 1"ht.	199

MICRO SOLUTION

120MB Ext (printer port)	299
250MB Ext (printer port)	389

SUMMIT

SE250 250MB w. Central Point Backup	205

20. VGA CARDS

Hauppauge Win/TV-02 (122 channel tuner)	450
- Adapter Cable / S-Video Kit	52/85
INTEL Smart Video Recorder	535
Paradise 31X 1MB	159
Standard 24 VLB 1MB	105

(All cards 1024x768 except as stated)

CGA / MGP card (Monographic w. Printer)	29
ET4000 Tseng Lab 1MB	95
ET4000 Tseng Lab VLB 1MB	129
Oak067 Super VGA 512K	52
Oak077 Super VGA 1MB	65
STB Super VGA 1MB	99

AMI

FastView EISA VGA Graphics 1MB	295
FastView P9000 VLB	409

ATI

VGA Stereo 512K w. speakers	199
Wonder XL 24 1MB, Hi-color, w. mouse	159
Graphic Ultra 1MB (VRAM) w. mouse	225
Graphics Ultra Plus 2 (DRAM)	319
Graphics Ultra Plus 2 (DRAM) w. mouse	349
Graphics Ultra Pro 2MB (VRAM) ISA	389
Graphics Ultra Pro 2MB (VRAM) VLB	395

DIAMOND

SpeedStar Pro VLB 1MB (DRAM)	149
SpeedStar 24X 1MB 16 million color	179
Stealth 1MB (VRAM) w. Sierra Hi-color	205
Stealth 24 1MB (DRAM),16 million color	179
Stealth 24 1MB (DRAM), VLB	189
Stealth Pro (VRAM) 1MB / VLB	259/279
Stealth Pro (VRAM) 2MB / VLB	359/379
Viper VLB P9000 (VRAM) 2MB	409

GENOA

7900 1MB, 16 million color, 24 bit	119

MYLEX

GLE911 1MB, 1280x1024, EISA	399
GXE020B 4MB (DRAM), 1280x1024, 2MB VRAM, TMS34020, Tiga/EISA	1039

NUMBER NINE (TI34020)

#9 GXe 1280 x 1024, 90Hz, S3-928 chip	
- Level 10 VRAM ISA 1MB (special)	(325)399
- Level 11 VRAM ISA / VLB 2MB	(485)/559
- Level 12 VRAM ISA / VLB 3MB	(625)/699
GXI Lite L20 TIGA,WIN, 1280-16color	565
GXI Lite L21 CAD, WIN, 1280-16color	725
GXI Level 24 CAD, WIN, 1280x1024-256	1279
GXI TC-Level 29, 24 bit 1280x1024-265K color at 72Hz,4MB (VRAM) 1MB (DRAM)	1495

ORCHID

Fahrenheit VA/ VLB, w.voice annotation,24 bit	205
Fahrenheit VLB, VESA 1MB 24bit	175
Fahrenheit 1280 (DRAM) 1MB	165
Calcius VLB 1MB	235
Fahrenheit P9000 VLB 3MB	369
ProDesigner IIs 1MB, w. Hi-color	145
ProDesigner IIs,1MB, Hi-color for MCA	199

III SOFTWARE

21. CD SOFTWARE

BUNDLE

5 - PACK # 1	***139***
Chess Master 3000 *or* Mavis Teaches Typing	
Grolier's New Multimedia Encyclopedia WIN	
Reference Library	
Time Table of History	
Wing Commander w. Ultima 6	
5 - PACK # 2	***135***
Atlas Pack (World & US)	
Compton's Multimedia Encyclopedia WIN	
Reference Library	
Secret Weapons of Luftwaffe	
The Animals	

GROUP A

Choose any 5 titles for $99

American Business PhoneBook 92	29
CD Story Time	25
Desert Storm	29
Discis : Kids Read	
- Cinderella	27
- Heather Hit her First Home Run	27
- Long Hot Day at the Ranch	27
- Moving Gives Me Stomach Ache	27
- Mud Paddle	27
- Paper Bag Princess	27
- Tale of Benjamin Bunny	27
- Tale of Peter Rabit	27
- The Scary Poems for Rotten Kids	27
- Thomas Swimsuit	27
Great Cities I / II	29
Family Education Collection	29
National Parks	25
Rom Man Technologies : (w 3-D hologram)	
- Brain Drain	22
- Futura	22
- Let's Play	22
- Mirror-Mirror	22
- Oldies but Goodies	22
- Variety Store	22
Sherlock Holmes I	29
Tempra Access Photo CD (DOS, color)	25
US Atlas (MPC)	25
World Atlas (MPC)	25
World Travel	25

GROUP B

Choose any 4 titles for $99
Choose any 3 titles for $79

About COWS	25
Aloha! Hawaii	29
Atlas US President	29
Audubon's Birds	29
Barney Bear Goes to School	25
Barney Bear Goes to Space	25
Chess Master 3000	35
Edcuation Gameland (K-6 grade)	32
Family Choice	29
Interactive Story Time	29
Jets and Props	29
Jones in the Fast Lane	29
King Quest V	29
Media Music Shop	29
Mixed-up Mother Goose	29
Monkey Island	29
PC SIG Games	34
Reference Library	35
Sleeping Beauty	35
Space Adventure	29
Stellar 7	29
The Animals	29
The Adventure of Willy Beamish	29
Time Table of History	29
Who Kill Sam Rupert	29
USA Factbook	37

CENTRAL
CENTRAL COMPUTER SYSTEMS, INC.
WIDE SELECTION AT LOW PRICES

Wide Selection At Low Prices

820 Kiely Blvd. Santa Clara, CA 95051
Tel.: (408) 241-0185 FAX: (408) 241-0390

GROUP C

Choose any 3 titles for $99

All American Sports	39
Arthur's Teacher Trouble (oem)	35
Business Background	35
CD Fun House (350 games)	39
Cautious Condor	45
Corel Artshow 3 (Book + CD)	39
Electronic Library of Art	35
Essential Home & Business Collection	39
Golden Immortal	39
Greatest Books Collection	39
Hound of Baskervilles	37
LOOM	37
Macromedia ACTION! WIN	35
Mammals	39
Master Piece Library	35
Mavis BeaconTeaches Typing	39
Mayo Clinic Family Health Book	35
Pacific Islands	39
Pheonix Shareware v2.0	35
Secret Weapons of the Luftwaffe	35
Space Quest IV - Roger Wilgo	35
Talking Class Tales	35
Talking Jungle Safari	35
US Atlas w. Auto Map	35
Where in the World is Carmen Sandiego	45
Wing Commander w. Ultima 6	39

CD DELUXE	**55**
Chess Master	
Mavis Teaches Typing	
US & World Atlas	

OTHERS

7 Guests	69
Amanda Story	45
Amazing Universe	49
Anabel's Dream - Egypt	65
Arthur's Teacher Trouble / w. box	35/45
Atlas Pack (world & US)	39
Battle Chess Multimedia / w. box	39/49
Beauty and The Beast / w. box	22/35
Bible Library oem	49
CD Power (shareware)	35
CD Source Book of American History	85
Clip Art	19
Complete Bible	19
Compton's Family Encyclopedia / w. box.	49/175
Compton's Interactive Encyc. WIN	245
Compton's Multimedia Encyc. WIN oem	65
DARWIN	75
Dictionary and Languages	19
Dictionary of Living World / w. box	45/115
Dinosaur Adventure / w. box	35/49
Dr. T's Composer Quest / w. box	49/59
Electronic Home Library	45
Encyclopedia of Sound	19
Global Explorer (DeLORME)	99
Goldilocks and the 3 Bears (Eng/Fren/Span)	45
Grammy Awards	45
Great Literature (2000 books)	75
Great Wonders of the World	55
Groller's New Multimedia Encyc. WIN 1.5	75/225
Guinness Disc of Record / w. box	25/35
Heart the Engine of Life (about human body)	75
Information USA Government	65
JAZZ of Multimedia History	69
Just Fonts	39
Just Grandma and Me	39
Kodak Photo CD Access (DOS & WIN)	35
Laser Printer Companion	39
Learn to Speak Spanish	69
MacMillan Dictionary for Children (K-12 grade)	45
Microsoft CINEMANIA	55
Microsoft ENCARTA	255
Microsoft Multimedia Beethoven 9th Symphony	55
Microsoft Multimedia Bookshelf / 1993	55/125
Microsoft Musical Instruments	55
Mixed-up Mother Goose / w. box	29/45
Monarch Notes (over 2000 study guides)	65
Monster Disk II (2 shareware disk)	55
MPC Wizard (test & tune-up for Win)	15
Multimedia Animals Encyclopedia	59
Murder Makes Stranger Dead Fellows	49
Nautilus BackPac (6 disk)	55
New Basics Electronic CookBook	45
Old Testiment	59
Oxford English Reference Library	99
PC SIG Library vol.11 / w. box	45/99
Peter and the Wolf / w. box	22/35
Pheonix Shareware v3.0	49
Picture Atlas of the World	105
Pilgram Quest	75
Pixel Garden	35
Playing w. Language / w. box	39/57
Prescription Drugs / w. box	39/59
Pro Phone 93 (3 disk) / (7 disk)	99/139
Publish It	49
Q & A v 4.0	49
Quick Art Lite	85
Return to the Moon	49
Shareware Gold II	57
Sherlock Holmes I / II	29/49
Space Quest IV - Roger Wilgo / w. box	35/49
Stories of Murder, Mystery, Magic & Terror	39
Street Atlas (DeLORME)	99
Talking Schoolhouse	65
The Family Doctor / w. box	45/55
The World of US Manga	45
Ultimate Shareware	45
US History	49
Voyage to the Planets 1 / 2 / 3	55
Where in the World is Carmen SanDiego	35/65
Wing Commander w. Secret Misssion 1 & 2	55
World Vista	49

22. PC SOFTWARE

ADOBE (special)

Illustrator 4.0 WIN	359
PhotoShop 2.5 WIN	499
Streamline for WIN	125
Plus Pack for Mac / WIN	99
Type Align	59
Type Cartridge 1/ Type Cartridge 2	79
Type Manager for WIN 2.5	67
Type Set 1/2/3 for WIN	65/65/109
Type Set: Overheads & Slides	75
Type Set: Spreadsheets & Graphs	75

AUTODESK

AutoSketch 3.0 DOS (special)	(99)115
AutoSketch for WIN (special)	(155)175
Generic CADD 6.0 (special)	(249)285
Generic 3D (special)	(179)
Graphic Impact	85
Instant Artist	39
Home Series (Home/Landscape/Kitchen/Deck)	39
Multimedia Explorer	115

BORLAND

Brief 3.1 for DOS & OS/2	99
C++ for OS/2	149
C++ Professional 3.1 for WIN	319
C++ 3.1 for WIN & Application Frameworks	485
dBase IV v2.0 for PC (new)	499
ObjectVision 2.1 / ObjectVision Pro 2.1	102/335
Paradox 4.0 DOS	499
Paradox for WIN (special)	125
Quattro Pro WINDOS / WIN/ 4.0 DOS	99
SuperPack (Quattro Pro & Paradox) WIN	195
Screenery (Windows wallpaper, screen saver)	25
The World of C++ (Video Training Kit)	85
Turbo C++ for DOS 3.0 / WIN 3.1	75/105
Turbo C++ Visual Edition for WIN (special)	79
Turbo Debugger & Tools 2.0	99
Turbo Pascal 7.0 / 1.5 for WIN	115/109

CENTRAL POINT

Anti-Virus 1.0 for DOS / 1.2 for WINDOS	15/39
PC Tools 8.0 DOS / 1.0 for WIN	115/119

INTUIT

Quicken for DOS 6.0/ WIN 2.0/ MAC 3.0.	45
Quicken Companion	17
QuickBook	87
QuickPay (payroll)	39
QuickBook & QuickPay	110

LOTUS

Improv - 12 data dimentions (special)	99
1-2-3 for WIN (special)	299
1-2-3 Rel 3.1+ for DOS / Rel 3.4 single	385
1-2-3 for DOS upgrade	105
Ami Pro 3.0 for WIN	229
- competitive upgrade	99
Freelance Graphic	299
- upgrade	99
Lotus Organizer (special)	(99)
Smart Suite (123 win, Ami,Freelance, ccMail)	450

MICROGRAFX

Designer 3.1	355
Graphics Works for WIN	125
Picture Publisher 3.1 for WIN	325
Windows Draw 3.0	49/69

MICROSOFT

C/C++ 7.0 w. SDK	315
- upgrade	135
DOS 3.3 / 4.01 / 5.0 / 6.0 (new)	29/19/55/49
- upgrade to 6.0	49
ACCESS (special)	95
Entertainment Pack for WIN 1/ 2/ 3/ 4	28
Excel 4.0 for WIN (special)	(285)299
- upgrade	125
Flight Simulator	39
FORTRAN 5.1 (special)	279(105)
Fox Pro 2.5 Distribution Kit DOS / WIN	319
Fox Pro upgrade to 2.5 DOS / WIN	(99)
Macro Assembler v6.1	129
Money for WIN 2.0 (special)	49(15)
Multimedia Development Kit (w. CD Rom)	299
Office for WIN 3.0	469
PC Mail Server for DOS & WIN (10-user)	435
Power Point for WIN	299
- upgrade	125
Profit for WIN	129
Project 3.0 for WIN	419
- upgrade	145
Publisher for WIN	125
Quick Basic Compiler 4.5	129
Quick C for DOS / WIN	69/125
Sound System for WIN (w.16 bit Audio card)	199
Sound Bits (Cartoons/ Hollywood/ Musical)	29
Test for WIN	249
True Type Font Pack 1/ Pack 2 (HP printers)	49
Video for WIN (CD & floppy)	129
Visual Basic 2.0 (WIN)	125
Visual Basic Professional Version for WIN	315
- upgrade	195
Visual C++	129
Visual C++ Professional	319
- upgrade	135
- competitive upgrade	189
Windows 3.1	65
- upgrade	45
Windows 3.1 Device Driver Development Kit	315
Windows Printing System	135
Windows for Workgroups	165
- Workgroups Add on (to WIN 3.1)	69
Windows for Workgroups Add on Starter Kit	310
- Workgroups Add on 1 User Kit	159
Word for Windows (special)	(285)299
- Word for Windows upgrade	125
Works 3.0 (new) / for WIN	99/125
- competitive upgrade (WIN)	79

QUARTERDECK

DesqView 286	59
DesqView 386 v2.4	129
DesqView / X	165
DesqView / X Network Manager (TCP/IP)	129
Qemm 386 v6.0	55
QEMM - Game pack	85

SANTA CRUZ OPERATION (SCO)

SCO C++	915
SCO ODT Dev. System 2.0 / Tape	1475/1250
SCO ODT Personal System 2.0/ Tape	1170/1066
SCO XENIX-NET 386 single server v1.3.0.	675
UNIX 386 Dev. System v 3.2.4	899
UNIX 386 GT Oper. Sys v 3.2.4 Multiuser.	899
XENIX 386 Dev. System v 2.3.1	599
XENIX 386 GT Oper. Sys v 2.3.4 Multiuser	650

SYMANTEC

Norton	
- Anti-Virus 2.1 (new)	79
- Backup v1.2 / v2.0	49/95
- Desktop 2.2 for WIN	105
- Commander (special)	(85)
- Utilities 7.0	109
On Target for WIN	89
PC Anywhere 4.5 Remote and Host	115
PC Anywhere Lan Complete	385
Q & A	239
Time Line 5.0 / for WIN	445/445
Time Line Lan Pack	379

WORDPERFECT

DataPerfect	265
DrawPerfect	265
LetterPerfect 1.1	95
PlanPerfect	235
WordPerfect 5.1 (DOS)	259
- upgrade for DOS	79
- competitive trade up 5.1 for DOS	105
WordPerfect 5.2 for WIN	265
- upgrade Kit to 5.2 for WIN	40
- upgrade to WIN 5.2 from DOS	85
- competitive trade up 5.2 for WIN	105
WP Executive	145
WP Office 3.1	95
WP Works	99
WP Presentations (w.Sound Blaster)	295

OTHERS

3-D Charts to go (special)	(35)
ACT ! 2.1 / 2 user / for WIN	225/335/235
After Dark for WIN (screen saver)	27
ALDUS	
- Freehand 3.0 for WIN	379
- PageMaker 4.0 for WIN (free upgrade 5.0)	455
- Persuasion 2.1 for WIN	325
- Photostyler 1.1 for WIN	515
Asymetrix Multimedia Make Your Point	65
Automap (road atlas) / for WIN	49/59
By Design for WIN	59
Body Works	39
Boot Con (solve compatibility problems)	49
CALERA Wordscan 1.1 / plus	182/425
Carbon Copy 6.1 Guest & Host / for Win.	112
C - It 3.0 (for C/C++)	99
ClarisWorks for Windows	99
Clipper 5.2	479
- upgrade	115
Check-It plus	82
Corel Draw 3.0 (special)	(135)350
- upgrade	145
Da VINCE eMail 2.0 , 10 user (special).	485(295)
Dash Board for WIN (HP)	45
Direct Access 5.1 / for WIN (new)	63/45
DR DOS 6.0 + NetwareLite 1.1	65
Display Faces	77
EasyDOS (menu for WIN)	25
Energizer Bunny (screen saver)	19
FaceLift for WordPerfect / for WIN	59
Family Bible	25
Fastback Plus 3.1 (special) / for WIN	89/107
Fax Grabbler 1.2	72
Faxit DOS & WIN	69
Fax Master for WIN (special)	(79)
Fax Scanner	55
Fax Scanner w. Type Reader OCR	175
File Maker Pro 2.0 for WIN (special)	(125)259
Font Minder for WIN	55
Fractal Design Painter 2.0 WIN	255
Frame Maker 3.0 (special)	(299)485
- competitive upgrade	299
Full Motion Video MATINEE (screen saver)	29
Geoworks Pro	119
Grammatik V for DOS / WIN	57
Hardvard Graphics for WIN (oem)	375(279)
Hardvard Graphics 3.0 for DOS (oem)	399(299)
Hijaak 2.1 / for WIN	115/125
Hijaak PS	199
Hollywood for WIN (special)	99
LapLink Pro v5	105
- upgrade	55
Mac Print	75
More Fonts	77
My Product Invoice	45
OS/2 2.0 (IBM)	139
- upgrade	99
Omni Page Professional WIN 2.1	599
PFS: First Choice	79
Pacioli 2000 (special)	15
PC Swimsuit Calendar DOS / WIN	25/27
Peach Tree Accounting for WIN	75
Power Search (File Manager)	55
Procomm Plus 2.1 / for WIN	69/95
Professional Draw	269
- competitive upgrade	129
QA Plus 4.7 / for WIN	89
Quark X Press 3.1 for WIN	569
Right Writer 5.0 / for WIN	45
SpinRite III	79
Stacker Data Compression 3.0	95
- upgrade	55
Star Trek (WIN Screen saver)	37
Super PC-Kwik	59
Superstor 2X	59
Superstor Pro 2X	79
The Far Side (computer calendar)	15
Time Slip v.5.0.	189
Turbo CAD v3.0 (design & drafting)	85
UpFront for WIN (special)	(199)299
Ventura Publisher 4.1 (new)	499
- Ventura Publisher 3.0 + upgrade 4.0	399
- Ventura Publisher 4.1 Education special	199
Vista Pro	69
VISIO for WIN (shapeware)	195
Wave for WIN	75
Winfax Pro 3.0 (new)	85
Will Builder	15
XTree Gold 2.5	89
XTree for WIN 1.0 / 1.5	49/65

Educational Software & Games (on sale)

Cartoon-A-Day	9
Check Free	9
Home Office Paint	9
Math and Me	12
Personal Trainer for SAT	22
Power Macros	12
PS Menu	25
Quick Template	15
Reading and Me	19
Spell It plus	22

IV ACCESSORIES

Prices for accessories .... *call*

CABLES

IDE , SCSI
Keyboard or Monitor Extension
Network
- RG58 thin coax ethernet
- RG62 thick coax ethernet
- RG45 TP ethernet
- RG62 10' to 1000'
- Terminator 50ohms

Null Modem
Printer
Serial
Telephone
VGA

Cable Connection

BNC Inline Splice
BNC Right Angle
RG58 Connector head
RG58 Crimp
RG58 Twist
T Adapter
Terminator

Cover

CPU/ Monitor
Keyboard
Printer

Fellowes

- Anti- Glare Filter
- Copy holder
- Diskette File 5.25"
- Diskette File 3.5"
- Monitor Mover
- Monitor Stand
- Printer Stand
- Polarizer Filter

Tape Cartridge

- tape 120
- tape 250
- DC 1000, DC 2000, DC 2080
- DC 2120, DC 2120 format
- DC 6150, DC 6250, DC 600A
- DL 450, DL 600
- cleaning kit

FuncKey Templates

■

USER GROUP NETWORK

BULLETIN BOARDS

MULTI-ZONE

HoloNet Internet Access BBS. (510)704-1058; call for other nationwide numbers. 8-N-1, 24 hrs., 1200/2400/9600/14,400. Internet: telnet, FTP, IRC, MUDs. 3500+ Usenet groups. Free demo. [Exp. #111.]

Interactions BBS. (408)258-8913, (415)469-5510, (510)832-0560. 12 line friendly chat (over 18 only), two-week free trial. Sysop: C. Watson. [Exp. #110.]

Lambda. (415)572-2591, 755-9439, (510)268-9891. Adult, mostly gay/lesbian, all are welcome. Email, chat, matching. Free. [Exp. #109.]

Portal Communications. (408)725-0561, (300–2400); (408)973-8091, (9600–57,600); (415)965-8059, (300–57,600). Worldwide X.25 online, shell, BBS & UUCP connections. Voice: (408)973-9111. [Exp. #111.]

SF Net. (415)824-8747, 589-2194, 332-3923, (510)450-0155, 638-8644. Coffee House/Cafe Connection, 32 lines, public terminals, chat, matchmaker, msg areas, Fido 1:125/824, Internet mail. Voice: (415)695-9824. [Exp. #111.]

209

BerthaBoard. (209)823-0093. 1200–14,400. Two lines, 5.2GB, 70,000 files, lrg. msg. base. [Exp. #110.]

Extacy BBS. (209)962-4045. Adults only, four lines, 6000 files, and free adult video tape to new members. [Exp. #110.]

The Haunted Castle BBS. (209)826-1900. 2400/9600. Two nodes, 650MB online, GIFs, sound, Windows, games. [Exp. #109.]

408

#1 Fun Seekers. (408)379-0958, 379-9680. 8-N-1, 24 hrs., IBM, lots of adult/other files, online games, classified ads, msg base. [Exp. #110.]

A32 Macintosh User Group BBS. (408)378-8252. 24 hrs., 2400. Mac, First Class, members only. [Exp. #110.]

Amateur Action BBS. (408)263-3393. 8-N-1, 1200/2400/9600. 100% Adult Amateur GIF files, eight lines. [Exp. #109.]

Applied Knowledge BBS. (408)733-9341. 8-N-1, 14,400. Free stock price forecasts on 6000 NYSE, AMEX, and OTC stocks. Free access. [Exp. #111.]

Atlantis BBS. (408)377-8510. 8-N-1, 24 hrs., 2400. 12 lines, multiplayer games, national chatlink 7–10 pm, CD-ROM files. [Exp. #110.]

Bay Area Atari User Group BBS. (408)986-0215. 8-N-1, 24 hrs., 300/1200/2400. [Exp. #111.]

BayVAC DEC LUG BBS. (408)776-4823. 9600. Log in as username GUEST, password GUEST for BBS information. Voice: (408)776-4978. Sysop: Rich Taylor. [Exp. #110.]

The Beggar's Tomb. (408)243-TOMB. GIFs, stories, and animation for adult orientations. Sysop: The Grim Reaper. [Exp. #110.]

Burn This Flag. (408)363-9766. 2400/9600. Esoteric text files and message system from closet Luddites. San Jose, two lines. NIRVANAnet. [Exp. #111.]

Careers Online. (408)248-7029. 1200/2400/9600/14,400. Online job and contract listing, resume fax service. Free to all. [Exp. #109.]

CBORN. (408)262-7876. 8-N-1, 1200/2400. Classified business opportunity research net. Sysop: Leo Bert. [Exp. #109.]

Code Room. (408)266-3818. 8-N-1, 16,800. A Programmer's BBS: complete support for OS/2 2.x, tons of C files, Fido and FxNET msg networks, and Fun Doors. Sysop: Ramin Akhbari. [Exp. #111.]

Comp-U-Ease. (408)286-8332. Engineering and CAD, related files and topics, hum for RIME email network. [Exp. #111.]

Cruzio. (408)423-9995. 8-N-1, 1200/2400/9600. Santa Cruz county email, USENET and scruz newsgroups, databases, files, MUD/chat. Sysop: Peggy Dolgenos. [Exp. #109.]

The Electric Pages. (408)253-4280. 300/1200/2400. Commercial and private advertising. Select by category or key words. Voice: (408)253-1709. Sysop: Contemporary Communications, Inc. [Exp. #111.]

Escape To Other Worlds BBS. (408)956-1750. 8-N-1, 1200/2400/9600/14,400. SF/fantasy, comics, games, RIME. Three lines, D/L files. Mac and PC GIFs, 1.8GB. [Exp. #111.]

The Harper's Inn BBS. (408)734-9448. 24 hrs., 14,400. Lots of doors, messages, JetNet node, VGA Planets. Sysop: Bugs. [Exp. #110.]

HeartBeat Earth. (408)257-2306. 300/1200/2400. The South Bay's Environmental and Quality of Life information service. [Exp. #110.]

Higher Powered BBS. (408)737-7040. 2400–

Continued

PATHWAY COMMUNICATIONS

WEST COAST SWINGERS BBS

CALIFORNIA'S NUMBER ONE SWING MAGAZINE

✓ 8 lines - 2400, 9600, and 14.4k lines available!

✓ Live chatting with other users online

✓ *Multiple* Adult CD-ROMs online, thousands of files!

✓ Regular Shareware available on CD-ROM

✓ Read Adult Classified Ads before they're published!

✓ Leave your own Classified Ad! With a picture!

✓ Privately converse with others through E-mail

✓ Message bases dedicated to alternative lifestyles

✓ Only $15/month

VISA MasterCard

2400 only - (408) 946-7083
9600 only - (408) 946-6734
14.4k only - (408) 946-7135

CALIFORNIA'S #1 SWING MAGAZINE

Amateur Action BBS

Amateur Adult GIF Files!
Over 14,000 files on line!!
New Member Bonus!!
FREE Amateur Video!!

VISA MasterCard

(408) 263-3393

8 Lines
US Robotics Dual Standard
Modem 1200/2400/9600
V.32/14400 HST

BAY AREA BBSes

By Kathleen Creighton

Beating The High Cost Of BBSing

Every BBS listing holds the promise of something interesting—all we have to do is reach out and dial in. Curiosity often gets the better of our budgets, though, and one of the first things a neophyte BBS caller learns is that it takes a tremendous amount of discipline to keep the phone bill within reasonable limits.

Reading user statistics on the boards that have them makes it abundantly clear that the highest percentage of usage for any board comes from folks within the same area code, and probably from people for whom the call is not a toll call. Pacific Bell limits "local calls" to within twelve miles of call origination. Whether because of the lousy economy or general phone bill paranoia, this practice does seem to have an impact on the hobby, and can be especially felt on specialty BBSes, many of which don't reach a larger audience because the board might be in an outlying toll area.

There are a number of ways to enjoy Bay Area BBSes and reduce the cost of doing so. The Pacific Bell representative who helped me with this column said it surprises him that more people don't use these services.

This column is just an overview of what is available; it is not meant to be an in-depth presentation of rates and the variables that affect them. In order to nail down how—or if—a particular service can help you with the bill, call your Pacific Bell representative. A few minutes spent analyzing your phone calling patterns could save you real money.

•**Lifeline Service:** First, Pacific Bell offers low-income rate assistance, the cost dependent on the number of people in the household. One to two adults with an income of $15,300 or less each year can apply for flat-rate lifeline service at $3.18/month. There are a number of low-income people who BBS and can save a few dollars on the basic rate this way.

•**Community Calling:** Second is an offering called "Community Calling Plan." If there is one phone number within your "community" (defined as within forty miles of your local phone company central office), Pacific Bell offers a 30% discount service to that particular exchange. Fees for this service vary, but the 30% discount is available

Continued

Senior Engineer Scott Said:
" Buy Legend 386/486 upgradable system can upgrade to DX2-66 easily, and save!

"Good Price!
486 DLC-40 MHZ
Local Bus System
w/CYRIX CPU
upgradable to DX2-66 system
only $ 961

Legend

"Good Price!
486 DX-40 MHZ
Local Bus System
w/AMD CPU
upgradable to DX2-66 system
only $ 1125

SYSTEM	BASIC SYSTEM						BASIC SYS +170MB HDD +SVGA CARD & MONITOR
486DX2-66 EISA	899						1358
486-50/64C EISA	826						1285
486-33/64C EISA	671						1130
486DX2-66 ISA	759						1218
486-50/64C ISA	756						1115
486-50 ISA	632						1093
486-33 ISA	464						825
486SX-25C ISA	365						826
386-40/64C	305						764
386DX-33	305						764
386SX-33	251	465	565	609	640	675	710
386SX-25	242	456	556	598	633	668	703

486 DX-40MHZ Locus Bus System with Bus Master

- Upgradable to DX2-66
- Motherboard &AMD CPU
- 4MB RAM
- IDE I/O (2HD/2FD 2S/P/G)
- 1.2MB & 1.44 Floppy Drive
- 130MB Hard Drive
- SVGA Video Card
- 14" SVGA Monitor 1024x768
- Mini Tower Case With 230W Power Supply
- 101 Enhanced Keyboard

$ 1125

If You Want To Buy Computer Parts, Please Ask Our Special Price First !!!

Thank You

We Beat Any Price

BASIC SYSTEM CONFIGURATION:
Motherboard + CPU, 1 MB Memory Installed, 1:1 2 HD/2FD Controller, 1.2 MB or 1.44MB Floppy Drive, Internal Clock/Clendar, Enhanced Case with Power Supply, & 101 Enhanced Key Board.

LEGEND SUPER SALE !!!

486DX2-66/486DX-50 Local Bus System

- Upgradable to DX2-66
- High Quality Legend Motherboard
- 486CPU/64K Cache
- 4MB RAM
- IDE I/O (2HD/2FD 2S/P/G)
- 1.2MB Floppy Drive
- 1.44MB Floppy Drive
- 130MB Hard Drive
- SVGA Video Card
- 14" SVGA Monitor 1024x768
- Mini Tower w Case With 230W Power Supply
- 101 Enhanced Keyboard

$1329/1245

486-33/64K Local Bus System

- Upgradable to DX2-66
- High Quality Legend Motherboard
- 486CPU/64K Cache
- 4MB RAM
- IDE I/O (2HD/2FD 2S/P/G)
- 1.2MB Floppy Drive
- 1.44MB Floppy Drive
- 130MB Hard Drive
- SVGA Video Card
- 14" SVGA Monitor 1024x768
- Mini Tower w Case With 230W Power Supply
- 101 Enhanced Keyboard

$ 918

386-40/64K

- 386DX-40 CPU/64K cache & Legend Motherboard
- 4MB RAM
- IDE I/O (2HD/2FD 2S/P/G)
- 1.2MB Floppy Drive
- 1.44MB FloppyDrive
- 130MB Hard Drive
- SVGA Video Card
- 14" SVGA Monitor 1024x768
- Mini Tower Case
- 230W Power Supply
- 101 Enhanced Keyboard
- Math. Co-processor Socket

$ 856

SPECIAL !!! CD ROM

- Mitsumi CD ROM& NX Sound Card Bundle Price $ 315 --W/Speakers

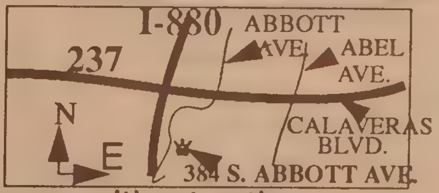
CD ROM Software

- 125 CD ROM titles avaliable, including: MS Bookshelf, Chess Master, ...etc.

- **32 Bit Vesa SVGA Local Bus Card**
Faster! Faster!

Legend Computer Inc.
384 South Abbott Ave.
Milpitas, CA. 95035
TEL: (408)262-6861
FAX: (408)262-6315

Business Hours:
Mon-Fri. 9AM-6PM
SAT 10AM-6PM



* Prices, availability and terms are subject to change without notice
* Not responsible for typos

BBSes continued...

16,800. Multiline, voted in Top 100 BBSes in World. Over 300 ILink, SmartNet, Intelec, SFNet conferences. [Exp. #111.]

The Holodeck BBS. (408)248-0869. 1200/2400/9600/14,400. Online games, Fidonet, IBM files, and GIFs. Home of W&W Communication Doorware. [Exp. #109.]

Hot City. (408)848-6681. 300–19,200. Seven lines, 2.4GB, 1800+ USENET subs, Fido, RBBS, and more. Auto call back, San Jose area, after validation. [Exp. #110.]

International TeleText Communications, Inc., (ITC). (408)735-1803. 24 hrs. Learn about new TV Data Trasmission Technology on TV36. Complete stock market dtat and more. [Exp. #109.]

Laser Light BBS. (408)496-0771. 8-N-1, 24 hrs., 2400/9600/14,400. IBM, best games in town! Apogee, EPIC, Moraff & MVP Release site. Sysop: Robert Mueller [Exp. #109.]

Mail Stop BBS. (408)257-1919. 8-N-1, 24 hrs., 300/1200/2400/4800/9600. Free, private email and SIG system. Internet mailboxes avail. Sysop: Dcarter. [Exp. #111.]

Megamedia Multimedia BBS. (408)428-9901. 2400/4800/9600/14,400. Multimedia based, 11,000+ files. Free. Sysop: Raaj Menon. [Exp. #109.]

Monterey Gaming System. (408)655-5555. 300/1200/2400/9600/14,400. 20 lines, conferences, msgs., custom games. Free. [Exp. #111.]

Pacific Exchange BBS. (408)946-8561. 12 lines, 50,000 IBM/Windows files, adult files, online news, games, and more. [Exp. #109.]

Paradise City BBS. (408)280-6630. 1200/2400/9600/14,400. Two lines. Tons of files and doors. Free full access on first call. Sysop: Jim Reed. [Exp. #111.]

The Real Estate Network. (408)956-1961. 8-N-1, 24 hrs., 2400. Services include financing, relocation, and messages. Search for agents, property ads, and open houses. Free. [Exp. #110.]

Ring Of Fire BBS. (408)739-8753. Home for United Sysop's Association and Silicon Valley Novell Users Group. Since 1982. Hub for USAnet. Sysop: Bill Strouse. [Exp. #111.]

The Rising Storm. (408)739-8693. 8-N-1, 14,400. Emergency prep., firearms, politics, and more. Survival echos and files. Sysop: Kirk DeHaan. [Exp. #110.]

Risque Business. (408)776-1841. 14,400. Premium adult graphics. [Exp. #110.]

The Roadkill Grill. (408)985-0213. 1200/2400. Fidonet/OtherNets. 5 nodes, lots of loony people. Free access. Sysop: Bryce Wolfson. [Exp. #111.]

San Jose Connection. (408)956-8819. 8-N-1, 24 hrs., 300/1200/2400/9600. Fidonet 1:143/111. KinkNet 69:1000/111. Many msg areas, files, job listings, all orientations, adult, and teens. Free. Sysop: Eral & Manuel. [Exp. #111.]

The Shrine BBS. (408)747-0778. 9600. Magick, religions, sex, and more. Adult and women only areas by request. Free system. Sysops: Junell Zzz and Tom Zoch. [Exp. #111.]

ShrinkTank BBS. (408)257-8131. 8-N-1, 24 hrs., 300/1200/2400/9600/14,400. Mental Health, Psychology, Men's Issues, Recovery conferences. All users welcome! Sysop: Rob Bischoff, Ph.D. [Exp. #111.]

The Silicon Connection. (408)492-9700. 24 hrs., 300/1200/2400. Electronic PenPal Network, 20 lines. [Exp. #111.]

Silicon Valley BBS. (408)946-3792. 8-N-1, 24 hrs., 1200/2400/9600/14,400. Mac, IBM, OS/2, graphics, games, utils, G–XXX, adult conferences. Sysop: Alan Ginsburg. [Exp. #109.]

The Silicon Valley Christian Connection. (408)225-2878. 300/1200/2400/9600/14,400. NewLife Net, Christ World Echo Mail, files, MIDI, GIF. Free access. [Exp. #111.]

Smorgasbord BBS. (408)722-9101. Aptos, Watsonville, Gilroy. 25,000 IBM/Mac files, matchmaking, WNET. [Exp. #111.]

Softwaremania BBS. (408)238-1681. 8-N-1, 300/1200/2400/9600/14,400. New! Games, utils, multimedia, GIFs, Win 3.xx, sound, and more. Sysop: Tony Luu. [Exp. #111.]

Spectral BBS. (408)443-8740, 443-9781. 24 hrs., 1200/2400/9600/14,400. Free D/L's, 8GB adult files, doors, and more. [Exp. #110.]

The Support Network BBS. (408)259-0297. 10:00 am–midnight daily, 8-N-1, 1200/2400/9600. Community computing for Santa Clara County. Sysop: Frank Arnold. [Exp. #111.]

The Tech BBS. (408)279-7199. 8-N-1, 5:30 pm–9:30 am, PST. 300–19,200. BBS run by staff and volunteers of The Tech Museum of Innovation. [Exp. #111.]

The Village. (408)229-6706. 2400/9600/16,800. Over 125 online games, 800MB, echo mail. Full access on first call. Sysop: Michael Wilson. [Exp. #110.]

The Virtual Reality BBS. (408)246-5434. 8-N-1, 1200/2400. Virtual/Net files, virtual reality games. Free. Sysop: Jim Busby. [Exp. #110.]

The Warrior Realm BBS. (408)287-3945, 287-0835. 8-N-1, 24 hrs., 300/1200/2400. Multiplayer doorgames & FRP, IBM files, and fun. Sysop: Mark Barrow. [Exp. #111.]

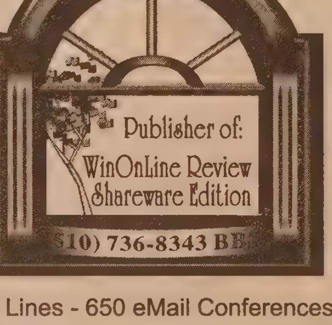
West Coast Swingers BBS.

Continued

NTELOG
20 Nodes BBS
OS2 ◦ DOS ◦ Windows
& Image Files
Internet ◦ Usenet
Rime ◦ ILink Email
(408) 655-1096 2400 bps
(408) 655-8294 v.32bis
(408) 655-8297USR HST
AMERICAN EXPRESS Cards
VISA
Register Online

GARLIQUE GRAPHICS
WORLD FAMOUS GIF'S
ADULT CD'S
FREE CATALOGS
SUBSCRIBE ON-LINE
VISA AMEX
408-847-0665

Windows OnLine™
"One Stop Shopping for Windows Shareware"
C A L L
T O D A Y



14 Lines - 650 eMail Conferences
8,500 WINDOWS FILES
1,000 OS/2 - 17,000 DOS Files
Accept Visa/MasterCard/Amex On-line
510-736-8343 BBS

PACIFIC EXCHANGE
"Full Featured BBS"
- 50,000 DOS/Window files
- 10,000 Adult Files
- 12 Incoming Data Lines
- USA Today News
- On-Line Shopping Mall
- Support to 38,400 bps
- User Interactive Games
- Teleconferencing
- 68 Different SIG's
- Classified Ads & More
Full Access - $25/Year
MasterCard VISA
408 - 946 - 8561

BBS Column continued...

during any calling period (dial day, dial evening, dial night). You can buy different dollar amounts of this service and receive double that amount in free calls, then the discount kicks in on the remainder. If you're regularly calling a BBS out of your toll area, but within forty miles as measured by the phone company, the savings can be impressive. You can also buy more than one Community Calling Plan if there's another number in your 40-mile calling radius you call consistently. If you're disciplined enough to limit your phone calling to dial night rates (11 pm to 8 am, and all day Saturday, Sunday, and holidays), the cost of favorite toll BBSes might even be within your budget.

•**Circle Calling:** Third is "Circle Calling," another 40-mile radius plan, but one which is not limited to one particular exchange. Circle Calling gives the user a 30% anytime discount and is $4.75 a month, but there is no free call allowance as with the Community Calling Plan.

•**Wide Area Plan:** Fourth is "Wide Area Plan." This plan is available to area codes 415, 510, 707, and most of 408 (another phone company covers the rest of area code 408). It does have limited calling times (9 pm to 8 am every weekday, all day on weekends and holidays, and between 12 noon and 2 pm weekdays). The Wide Area Plan is $6.75/month and gives you $8.50 in free toll calls; then a 25% discount is applied to the balance of applicable calls.

There are other ways to cut down on the phone bill. Many BBSes are now connecting at modem rates faster than 2400 baud and you might consider investing in a high-speed modem. Download and learn how to use an offline reader so you aren't racking up charges just sitting there reading the screen. And discipline your toll calling to dial during night rates only—but when I can't get on a BBS at 6 am I might regret writing this column!

Implementing all three tips, plus a calling plan, would pay for a faster modem or a Hawaiian vacation fairly quickly.

707 INTERNET ACCESS

In the same budget vein, Jim Couch at CR Lab, featured here in the last Internet access column, has had an Internet access number installed in Santa Rosa, making toll-free and lower-cost tolls available to more of Sonoma County. This number is in place on a test basis to see if it attracts the Sonoma County rural telecommuters, so spread the word. CR Lab offers Internet access for $17.50/month. For more information, give Jim a call at (415)381-2800. ■

Copyright © 1993 by Kathleen Creighton. All rights reserved.

SCIENTECH SILVER SERIES!

5 YEAR LABOR WARRANTY

What an Incredible Deal!

You asked for the best quality at affordable pricing and we at ScienTech listened.

Our new "Silver Series" uses top quality name brand components to bring you years of worry free service and dependability.

ScienTech a division of Shen Wei (USA) Inc., a leading manufacturer of computers for over 8 years, stands behind all of its computer products with a full warranty program (5 year labor, 1 year parts).

At ScienTech our professional staff will consult with you on the right computer for your needs. We also provide custom configuration on any system to match your needs.

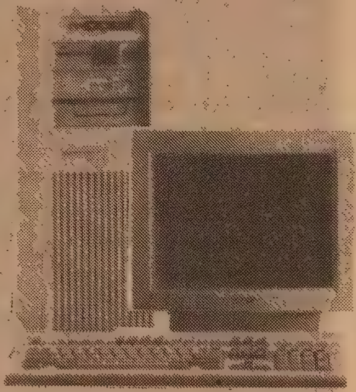
Come in to ScienTech and experience great quality and customer service.

SILVER SERIES

VLB 486DX2-66MHz

340 MB SUPER VGA CACHE SYSTEM

- Intel 486DX2-66MHz w/256K Cache
- AMI BIOS
- 8MB RAM on board exp. to 32MB
- 340MB IDE Hard Drive
- SVGA (1024x768) Display Monitor
- VLB SVGA Display Card w/1MB
- 1.2 & 1.44 Teac Floppy Drives
- VLB IDE Controller
- 2 Serial, 1 Parallel, & 1 Game ports
- Medium Tower Case w/250W power supply
- Enhanced 101-Key Keyboard



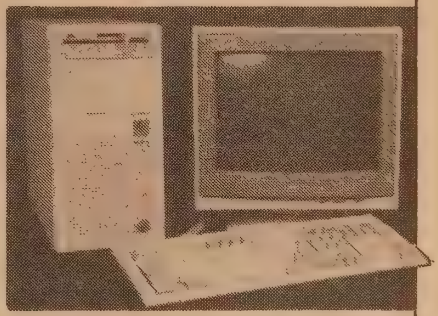
$1878

SILVER SERIES

ISA 486DX-50MHz

200MB SUPER VGA CACHE SYSTEM

- Intel 486DX-50MHz w/256K Cache
- AMI BIOS
- 4MB RAM on board exp. to 32MB
- 200MB IDE Hard Drive
- SVGA (1024x768) Display Monitor
- SVGA Display Card w/1MB
- 1.2 & 1.44 Teac Floppy Drives
- IDE Controller
- 2 Serial, 1 Parallel, & 1 Game ports
- Mini-Tower Case w/200W power supply
- Enhanced 101-Key Keyboard



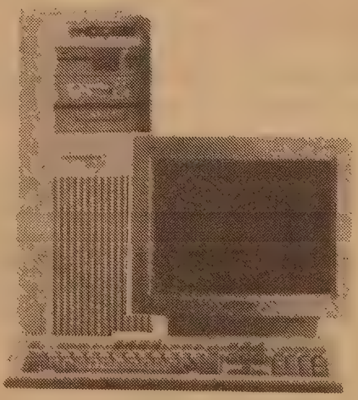
$1428

SILVER SERIES

EISA 486DX-50MHz

340MB SUPER VGA CACHE SYSTEM

- Intel 486DX-50MHz w/256K Cache
- AMI BIOS
- 16MB RAM on board exp. to 32MB
- 340MB IDE Hard Drive
- SVGA (1024x768) Display Monitor
- EISA SVGA Display Card w/1MB
- 1.2 & 1.44 Teac Floppy Drives
- EISA IDE Controller
- 2 Serial, 1 Parallel, & 1 Game ports
- Full Tower Case w/250W power supply
- Enhanced 101-Key Keyboard



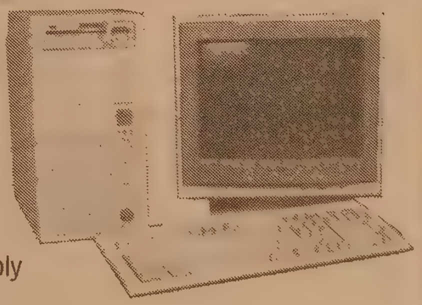
$2598

SILVER SERIES

386DX-33MHz

120MB SUPER VGA CACHE SYSTEM

- Intel 386DX-33MHz w/128K Cache
- AMI BIOS
- 4MB RAM on board exp. to 32MB
- 120MB IDE Hard Drive
- SVGA (1024x768) Display Monitor
- SVGA Display Card w/1MB
- 1.2 & 1.44 Teac Floppy Drives
- IDE Controller
- 2 Serial, 1 Parallel, & 1 Game ports
- Mini-Tower Case w/200W power supply
- Enhanced 101-Key Keyboard



$928

5 YEAR LABOR, 1 YEAR PARTS WARRANTY
COMPLETE UPGRADES AVAILABLE
CUSTOM CONFIGURATION AVAILABLE

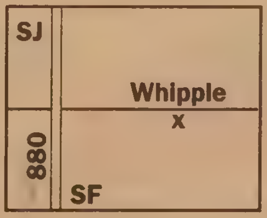
Corporate, Government, and University PO's accepted
All specifications & prices are subject to change W/O notice
Not responsible for typographical errors.

ScienTech R & D Inc.

A division of Shen Wei (USA) Inc.

2845 Whipple Road
Union City, CA 94587

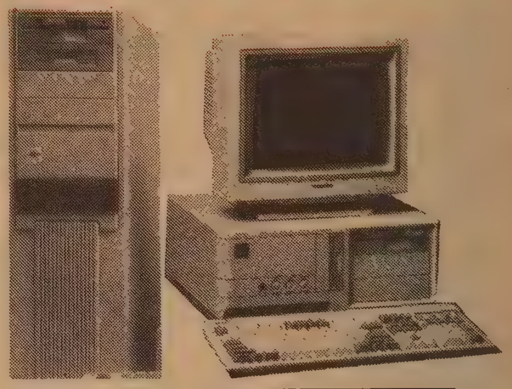
(510) 429-8690
Fax: (510) 429-8693
Hours M-F 9-6
SAT 10-4
AD REFLECTS CASH PRICES ONLY



Great Service! Great Prices!

FFC Class "B" Approved Systems!

5 Year Labor, 1 Year Parts Warranty • Manufacturer Direct Since 1984



MODEL	MB+ CPU	BASIC SYSTEM	BASIC SYS +40MB HDD +MGP CARD & MONO MONITOR	BASIC SYS +80MB HDD +SVGA CARD & SVGA MONITOR	BASIC SYS w/1.2 & 1.44 FDD +120MB HDD +SVGA CARD & SVGA MON	BASIC SYS w/1.2 & 1.44 FDD +200MB HDD +SVGA CARD & SVGA MON
486DX2-66 EISA W/128K	$712	$872	$1074	$1310	$1377	$1437
486-50 EISA W/128K	635	795	997	1233	1300	1360
486-33 EISA W/128K	492	652	854	1090	1157	1217
486DX2-66 ISA W/64K	599	759	961	1197	1264	1324
486-50 ISA W/128K	512	672	874	1110	1177	1237
486SLC2-50 IBM MB W/64K	389	549	751	987	1054	1114
486-33 ISA W/128K	379	539	741	977	1044	1104
486SX-25 W/128K	200	360	562	798	865	925
386-40 W/128K	146	306	508	744	811	871
386SX-40	98	258	460	696	763	823
386SX-33	85	245	447	683	750	810
286-20	59	219	421	657	724	784

BASIC SYSTEM INCLUDES

- Baby case & power supply
- Motherboard & CPU
- 1MB RAM installed
- 1.2MB or 1.44MB Floppy Drive
- 1:1 2HD/FD Controller
- Internal Clock/Calendar
- Math Coprocessor socket
- 101 Enhanced Keyboard

VESA LOCAL BUS

486 VESA Local Bus Motherboard
VESA 32 Bit Local Bus Video Board
+ Basic System

486DX2-66 w/256K Cache	$899
486-50 w/256K Cache	$819
486-33 w/256K Cache	$669

MULTI-MEDIA

MULTI-MEDIA UPGRADE KIT

"Super Entertainment"

Includes: ONLY $449

- Mitsumi CD-ROM
- Pro Audio Thunder Card
- FREE CD with 7 Software titles:
  - -Tempra Access (Photo CD)
  - -Microsoft Windows
  - -Microsoft Bookshelf
  - -Microsoft Works
  - -Mother Goose
  - -King Quest V
  - -Sound Library

CD-ROM DRIVES

Mitsumi LV005 w/Int	$188
Panasonic 522 w/Int	219
Sony 31A w/Int	215
Sony 541 SCSI	405
NEC 84-1 SCSI	465
Toshiba 3401B SCSI	465

SOUND CARDS

Sound Blaster 16 ASP	$235
Pro Audio Thunder Media Spectrum 16	145
Sound Commander	98
ATI Sound Card	106
Sound Galaxy NXII w/speakers	90

SYSTEM UPGRADES

VIDEO CARDS & MONITORS

ATI Ultra Pro VESA Local Bus w/1MB	$292
ATI Ultra Pro w/1MB 1280x1024, Win. Accel	292
ATI Ultra Plus w/1MB 1280x1024, Win. Accel	240
ATI Ultra w/1MB w/Mouse 1280x1024, Win. Accel	212
DIAMOND Viper VLB w/2MB	390
DIAMOND Speed Star Pro VLB w/1MB	135
DIAMOND Speed Star 24X w/HC	160
DIAMOND Stealth 24 w/1MB	160
ORCHID ProDesigner IIS (EISA) w /1MB Hi-Color	155
ORCHID P9000 VLB w/3MB	380
ORCHID Fahrenheit VLB w/1MB	168
ORCHID Fahrenheit 1280 Plus w/1MB	148
TSENG Lab VGA w/1MB	74
Cirus Logic w/1MB Windows Accelerator	59
NEC 3FGE /4FGE 15" 1024x768 .28	620/740
NEC 5FGE 17" 1024x768 .28	1135
NEC 5FG 17" 1280x1024 .28	1355
NEC 6FG 21" 1280x1024 .28	2350
SONY 1340/1730	582/980
VIEWSONIC 4E/5E/5+	278/372/472
VIEWSONIC 6E/6FS/7/8	312/522/928/1512
VIEWSONIC 15/17/20	$632/1166/1795

CONTROLLER

IDE 2FD/2HD	$12
IDE 2FD/2HD with 2S/1P/1G	15
Ultrastor SCSI 14F (ISA)	225
Ultrastor SCSI 24F (EISA)	390
Adaptec SCSI 1542 OK w/Kit (ISA)	236
Adaptec SCSI 1742 AK (EISA)	399
VLB IDE Cache Controller OK up to 16MB	185
VLB IDE Controller 2FD/2HD with 2S/1P/1G	50

HARD DRIVES

80MB 18ms IDE	$165
120MB 16ms IDE	185
170MB 16ms IDE	210
200MB 16ms IDE	250
250MB 14ms IDE	285
340MB 15ms IDE	380
520MB 12ms IDE/SCSI	750

CASES

Tower Case full size, 6 drives, 285wps	$105
Tower Case medium size, 6 drives, 230wps	85
Tower Case mini size, 5 drive, 230wps	55

MISCELLANEOUS

AT I/O (2S/1P/1G)	$11
Serial Card/ Parallel Card/Game Card	11
Fax Modem (9600 Fax, 2400 Modem)	49
Fax Modem (14,400 Fax, 14,400 Modem)	160
2400 Int. Modem	28
Serial Mouse	13
Power Center	14
Colorado Backup 120/250MB	150/202
16-Bit Ethernet Card 10 Base-T/COAX	63
SIMM/CPU/SRAM/DRAM	LOWEST
Math-Co 387 DX-33/40	65/85
Math-Co 387 SX-25/33	65/80
Math-Co Intel 387 DX-33	72

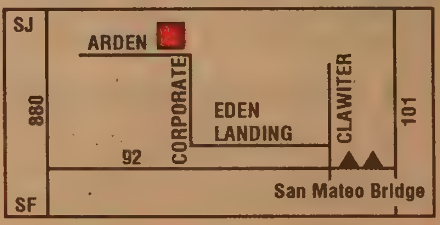
Government, Corporate, University, & VAR Inquiries and PO's Welcome

Prices subject to change without notice. Not responsible for typographical errors.

MCTechnology

3518 Arden Road
Hayward, CA 94545

(510) 670-0636
FAX (510) 670-0790
Hours M-F 9-6 SAT 10-4
Pacific Time



(408)946-7083, , 946-7135. 2400/9600/14,400. eight nodes, three CD-ROMs, chat, swinger ads, adult. [Exp. #110.]

Zone BBS. (408)720-1152, 720-1153. 8-N-1, 24 hrs., 1200/2400/9600/14,400. FidoNet, RBBSnet, CircuitNet echomail. File area for Mac & PC users. Free. Sysop: Ron Schultz. [Exp. #110.]

415

1st Pacific Computer & Software Exchange. (415)759-6341. 24 hrs., Buy, sell, trade, new, used. Quick D/L of all info & list. Free. Voice: (415)759-6070, 2–6 pm. [Exp. #109.]

5 Star BBS. (415)681-1172. 8-N-1, 24 hrs., 1200/2400/9600. Windows files, music, GIFs, games, adult, animation, shareware files. Sysop: Peter Lau. [Exp. #109.]

AEA. (415)338-7592. 300/1200/2400/9600. Asian American topics for debate and discussion. Sysop: Chih Ming Hornbuckle. [Exp. #109.]

After Hours Comm. (415)386-7372. 8-N-1, 24 hrs., 1200/2400/9600/14,400. Gay, Straight, Bi. XXX-graphics, animation, text erotica. Conversational msg bases. [Exp. #110.]

AHA Hydrogen BBS. (415)494-3116. 8-N-1, 1200/2400/9600/14,400. Alt. energy info—prosperity without pollution. [Exp. #110.]

ALIEN BBS. (415)359-8774. 8-N-1, 24 hrs., 1200–14,400. Amiga/IBM/Atari fiels and messages. Adult files w/registration. Free. Sysop: Ed Vandehey. [Exp. #110.]

CALIFORNIA ONLINE!
9 Lines
5.7 Gigs of Files
USENET-Wildnet-InfoNet-RaceNet
Browse 50,000 Messages in 300 Topic Areas
Internet E-Mail-Online Games
And we would like to welcome:
California ChatLine!
And all you have to do is call:
(415) 331-4081
No Modem? Call us at 331-4090 for CLUB MICRO's modem / peripheral price list. A Membership to CalOnl is included with every modem purchase!

Amiga Station San Francisco. (415)824-8774. 24 hrs., 300/1200/2400. TBBS supporting the Commodore Amiga. Free registration. Sysop: Richard Gaikowski. [Exp. #109.]

Anatomically Correct BBS. (415)856-8425. 24 hrs., 2400. Discussions of adult issues, more than 100 stories. No GIF files. Sysop: Howeird. [Exp. #111.]

The Back Door. (415)756-6238. 24 hrs., 300/1200/2400/9600/14,400. 49 lines, separate Gay, Lesbian, and Straight sub-systems. 18 and over only. [Exp. #111.]

Bay Area Luv Connection. (415)822-7550. 24 hrs. Adult board, 16 lines. Fee. Voice: (415)239-1028. Sysop: Ronnie Parker. [Exp. #109.]

Bay Link BBS. (415)931-0583. 8-line chatlinked occasionally to other cities, games, dating. Sysop: Brian Martin. [Exp. #109.]

Bay Windows BBS. (415)755-2939. 9 am–11 pm, DOS, utils, email, Windows. Sysop: Judy. [Exp. #110.]

California Online! (415)331-4081. 14,400. 6 lines, wide calling area. Huge file/msg database, chat, Internet, games. Free & reg access. Sysop: Jim. [Exp. #110.]

Charisma II. (415)802-9011. 1200–14,400. Two lines, tons of files and conferences. Free reg 1st call. Sysop: Robert Maverik. [Exp. #111.]

The Classified BBS. (415)665-7918, 665-2475. 8-N-1, 24 hrs., 1200/2400/9600/14,400. For-sale, echo mail, files, and more. Sysop: John Suelen. [Exp. #111.]

Compool BBS. (415)948-8928. 1200/2400/9600. IBM/MS-DOS file exchange, three lines, 2500+ files. Sysop: Andy Bajka. [Exp. #111.]

Computer Show Hotline. (415)340-9370. 8-N-1, 1200/2400. Latest Computer Show info. Complete list of dates, times, locations, and directions. [Exp. #111.]

Corner UNIX. (415)564-8750, 564-4345. 8-N-1, 1200/2400/9600/14,400. San Francisco Public Access UNIX. Sysop: Furryeel. [Exp. #110.]

Covert Operations. (415)897-1880. 24 hrs., 9600. Wildcat 3.60, growing Marin BBS, WildNet, GIFs/JPGs. Sysop: Matthew Taylor. [Exp. #109.]

CPP MultiMedia BBS. (415)665-1546. 24 hrs., 300/1200/2400/9600/14,400. Multimedia, GIFs, sound, Windows, credit help, pets. Sysop: Clements. [Exp. #110.]

The CyberDen. (415)472-5527. 24 hrs., 1200/2400/9600. A gateway into the electronic world for those of the cyberworld. Sysop: xorcist@cyberden.sf.ca.us [Exp. #110.]

David's Basement. (415)332-3943. Fidonet, TCalNet, DoorNet msgs. 170+MB, 45+ online games. Sysop: David. [Exp. #109.]

DPNet BBS. (415)788-8663. 8-N-1, 24 hrs., 300/1200/2400/9600. Free consultant job listings, Fidonet conferences, professional computing organizations, and technical SIGs. All welcome. [Exp. #110.]

The Elfspire Tome BBS. (415)595-2387. 1200/2400/9600. A Fantasy roleplaying G.M. resource bulletin board featuring roleplaying, games, fantasy clipart, and more. [Exp. #110.]

Fog City. (415)863-9697. 8-N-1. Gay & Lesbian community, chat, matchmaking, CD-ROMs, games, 2.4GB. Since 1986. [Exp. #110.]

Fun University Network (FUN). (415)327-4591. 8-N-1, 24 hrs., 300/1200/2400/9600/14,400. Current events, simulation games, and puzzles. Sub w/free intro. Sysop: Wendie, Mike, Lisa, and Scott. [Exp. #111.]

Golden Gate Computer Society BBS. (415)927-1216. 24 hrs., 1200/2400/9600/14,400. Four lines, ILink, CalLink, and USENET. d/l OK on first call. [Exp. #110.]

Graveyard Shift BBS. (415)923-9060. 2400/9600/14,400. All adult XXX, GIFs, animations, texts, lr. msg. base, ThrobNet, SexNet. Free. [Exp. #110.]

Guideboard. (415)864-3858. 24 hrs., 300/1200/2400. Multiline, Cabbie's Guide to SF restaurants, doctors, auto repair, etc. Sysop: Dick Schwartz. [Exp. #109.]

The Halibut BBS. (415)961-9635. A BBS for CAL Band Members. Band history files, serving your RIME needs. Free. Sysop: Marge Smith. [Exp. #109.]

IBBS West. (415)564-9996. 8-N-1, 24 hrs., 300/1200/2400/9600/14,400. 4 lines, PC and compatibles, shareware, utils., adult GIFs, CD-ROM, 13,000 files. Fee. [Exp. #110.]

InfoDude Communications. (415)855-9500. 24 hrs., 2400/6900/14,400. Teleconferencing, Forums. IBM, Windows, Mac, and Amiga files. Private email. Instant reg., first 30 hrs free, $3/mo. Sysop: Joseph A. Jenkins. [Exp. #111.]

IN-Formation EXchange BBS. (415)282-3823. RaVeNET Host system. GaSpNET programmer's hangout: C++, C, and Pascal w/megs of source code. Sysop: Robert Escamilla. [Exp. #109.]

The Informer BBS. (415)468-6713, 468-9913. 24 hrs., 2400–14,440. TCalNet, Intelec, FamNet, WindNet, Newlife, Operating Systems, Tech Specs, conferences. Subscription/free. Sysop: John Custer. [Exp. #111.]

International House Of Leeches. (415)897-8190. 300/1200/2400. Online games, 4GB of CD-ROMs, adult sections. Running T.A.G. Sysop: Vincent. [Exp. #111.]

The LaserBoard. (408)268-4863, 268-6323. 24 hrs., 14,400 RIME w/over 80 conferences, also local TNET and Wildnet conferences. Over 1GB. Sysop: Shawn Higgin. [Exp. #110.]

The Last Resort. (415)323-2616. 1200–19,200. 800+MB, GIFs, files, games, CD-ROM. Free. Sysop: Kelvin. [Exp. #110.]

Lies Unlimited. (415)583-4102. 2400. Politics and polemics. NIRVANAnet. Instant access, no fee. [Exp. #111.]

Marin County Net. (415)331-6241. 24 hrs., 2400–16,800. Aviation, sailing, files, and conferences. Two nodes. Free. [Exp. #111.]

The New Dork Sublime BBS. (415)864-DORK. Subliminal news for new dorks everywhere. NIRVANAnet node 9:900/10. Sysop: Demented Pimiento. [Exp. #111.]

OS2 Support BBS. (415)751-7107. 2400/9600/14,400. 3000+ files, Fido, IBM, OS2 Nets, 60 conferences. [Exp. #110.]

The OtherSide BBS. (415)292-5011. 8-N-1, 24 hrs. Four lines, 18 and over only! Alt. lifestyles—Gay/Bi men and women. Sysop: Robb Norris. [Exp. #110.]

The Phoenix Islands. (408)270-4077, 270-4078. 24 hrs., 1200/2400/9600/14,400. Windows, IBM files, GIFs, adult files. Free. Sysop: Phan Tram. [Exp. #109.]

Play-Mates. (415)969-1056. 8-N-1, 24 hrs., 1200. Mountain View BBS for adults w/alternative lifestyles. Gay & Bi. Sysop: Vic Ruder. [Exp. #109.]

The Play-Pen BBS. (415)897-3073. 8-N-1, 24 hrs., 1200–19,200. Chess, U'NI-net, MarkMail. Free. Sysop: Paul Ward. [Exp. #109.]

Prime Meridian BBS. (415)587-3995. 8-N-1, 24 hrs., 2400–57,600. MODs, utils, 500+MB, good access. Sysop: Ed Ng. [Exp. #109.]

Recovery BBS. (415)255-2188. 8-N-1, 300/1200/2400/9600/14,400. Dedicated to 12 Step Recovery programs (AA, NA, Al-Anon, CoDA, SLAA, etc.). Fido 125/9. Sysop: Rich Gorlin. [Exp. #110.]

Salt And Light BBS. (415)368-0790,,, 252525. 8-N-1, 2400. Bible/God question and answer resource. Questions answered by four ordained ministers. Bible-related study helps, games, and files. Free. Sysop: Lorin Wilson. [Exp. #111.]

San Francisco PC Users Group BBS. (415)621-2609. 8-N-1, 24 hrs., 1200/2400/9600/14,400. Sysop: Richard Couture. [Exp. #111.]

San Francisco Robotics Society Of America BBS. (415)648-6427. 8-N-1. Software and msgs for robot building enthusiasts. Sysop: Brad Smallridge. [Exp. #110.]

The Software Exchange! (415)992-2860. 8-N-1, 1200/2400/9600/14,400. Wildcat 3.60S, files, msgs, and doors. Six month trial, $5.00 lowest. Sysop: Chris Jong. [Exp. #109.]

SMUG (Stanford-Palo Alto Mac User Group) BBS. (415)856-0210. BBS on Threshold 2000, uses Telefinder GUI. [Exp. #111.]

Starnet Connections. (415)949-3133. 8-N-1, 24 hrs., 300/1200/2400/9600. Los Altos. Email, USENET, UNIX, and more. Sysop: Richard Mahn. [Exp. #110.]

Uncle D's Directory. (415)364-3001. 8-N-1, 24 hrs., 1200/2400/9600/38,400. Software for deaf & education, msgs, file search, classified ads, offline mail, doorways. No fees. [Exp. #110.]

VA Listings. (415)744-7793. 24 hrs., 300/1200/2400. VA-owned homes for sale. Multiline. Sysop: David Piersall. [Exp. #109.]

VidGame BBS. (415)742-6441. 2400–16,800. 5500 GIFs, music files, online games, Windows/LAN, 300+ conferences, utilities. Sysop: George Hassmer. [Exp. #110.]

Wetware Diversions Public UNIX. (415)826-0397. 8-N-1, 24 hrs., 1200/2400. Full Usenet news, eight lines. Sysop: Eric Swason (editor@wet.UUCP). [Exp. #110.]

Window World BBS. (415)931-0649. 24 hrs. For people who use Windows-type software. Info., shareware, chat. Sysop: Bob Cram. [Exp. #111.]

Wine Taster's. (415)459-1948. 300/1200/2400/9600/14,400. Info on 700 wineries, maps, forum, shareware, 1GB. Instant access. [Exp. #110.]

510

& Planet Mirth. (510)786-6560. 8-N-1, 24 hrs., 1200/2400/9600/14,400. Local msgs, Fidonet (1:215/130), AdultLinks, files, doors. Sysop: Comet & Bunny. [Exp. #109.]

& The Temple Of The Screaming Electron. (510)935-5845. A safe haven for visionaries and paranoids. 242MB of unusual text. NIRVANAnet HQ. Multiuser chat lines: two free, two contributor, two

Continued

BBSes

local. Sysop: Jeff Hunter. [Exp. #111.]

AbysS BBS. (510)482-5813. 24 hrs., FidoNet, GaSpNet, games, files, email, BRE League, Telegard Beta Site. Sysop: Gary Stewart. [Exp. #111.]

Activist. (510)532-6248. 1200/2400/9600/14,400. Files/msgs on politics, conspircy, technol, privcy, histry, philosphy, ethics, arts. Sysop: Walter Alter. [Exp. #111.]

A Good Investment. (510)417-0444. 1200/2400/9600. Investment-related files and message areas. Free, full access 1st call, ample download time. Sysop: Mark J. Welch. [Exp. #111.]

Alternate Reality BBS. (510)559-9151. 9600. Role-playing games, online games, msgs, text files, shareware, and more. [Exp. #109.]

Amiga Addicts Anonymous BBS. (510)680-2850. 8-N-1, 24 hrs., 1200/2400/9600. Amiga files. Free. Sysop: Stanley R. [Exp. #109.]

Bay Area OS/2 BBS. (510)657-7948. 8-N-1, 2400/9600. OS/2 files and conferences. Free. Sysop: Greg Altman. [Exp. #109.]

Berkeley WWIV Chess BBS. (510)486-0795. 8-N-1, 2400. Chessmaster's corner, Fido International Chess Echo, USENET rec.games.chess. Sysop: Walter Wood. [Exp. #111.]

The Billboard. (510)429-0801. 24 hrs., 2400/9600/14,400. Dual CD-ROMs, msg bases, online games, 27,000+ files. Free. Sysop: Bill Laster. [Exp. #109.]

Bust Out BBS. (510)888-1443. 24 hrs., 14,400. Six nodes, 3GB, huge msg and file network (many adult). Computer systems and software services. Sysop: Alex J. Riggs. [Exp. #109.]

Callisto Tower BBS. (510)794-9788. 24 hrs., MAGNet, GaSpNet, DangerNet echos. Files and reg doors. No fees. [Exp. #111.]

Camphor Fountain BBS. (510)547-5741. 8-N-1, 2400. Law, family life, creative writing, recovery, world religions. Seven networks. No fee. Sysop: Linda Martin. [Exp. #109.]

The Clubhouse BBS, Hayward Chapter. (510)785-1123. 24 hrs., 14,400 Genealogy, Teen, WordPerfect, Lotus, dBASE, nudist/naturist, plus many more national echos. [Exp. #109.]

Compufacts. (510)649-1933. 8-N-1, 24 hrs., 300/1200/2400/9600/14,400. Device drivers, jumper settings. The facts you need to know. Free & subscription. [Exp. #111.]

Compupal. (510)538-2040. 8-N-1, 24 hrs., 1200/2400. IBM PD, sports and Bible files, 120MB, nationwide message conferences. Sysop: Richard Yim. [Exp. #109.]

The Creative Dimensions BBS. (510)484-4944. 24 hrs., 1200/2400. Home of CD-MAN and more. Free downloads on first call. [Exp. #109.]

The Diamond Mind. (510)791-1910. 8-N-1, 24 hrs., 300/1200/2400/9600,14,400. Emotional support, IBM and Mac files, Fido echos; chat, online games, adult areas. Free user level. Sysop: Diamond & Frank. [Exp. #111.]

The Dragonhead BBS. (510)582-8478. 8-N-1, 24 hrs., 300/1200/2400/9600/14,400. Online games, offline mail reader. Free access. Sysop: Ray Khechen. [Exp. #110.]

The Eagle's Lair. (510)370-6460. The Musicians BBS, free listings and adds. Online magazine *Rock the House*, games, transfers, FoxNet. [Exp. #109.]

FrEdMail Oakland. (510)834-2636. 1200/2400/9600. Educator/student network w/Internet mail access, OUSD Bilingual Ed support BBS. [Exp. #110.]

FrEdMail Snlndro. (510)895-1785. 1200/2400/9600. Educator/student network with Internet mail access, San Leandro HS, NorCal Hub. [Exp. #110.]

The Gemstone. (510)791-2965. 8-N-1, 1200/2400. Robo board! EGA graphics w/mouse support, games, art gallery, fido echo mail. EGA/VGA needed. Free. [Exp. #111.]

GIFt Shop. (510)689-4686, 689-4378. 24 hrs. Four lines, HiQuality graphics & animations, Windows, OS/2, DESQview, networking utils, multimedia, sound clips. Sysop: Waik Gan. [Exp. #109.]

GMV-BBS. (510)294-9052. 24 hrs., 300/1200/2400/9600. Multiline subscription BBS. Teleconference, private chat, email, SIGs, games, and file library for Amiga, IBM, Apple 8-bit, and Mac. Livermore. [Exp. #111.]

Gospel Ministry Through PC. (510)932-8778. 8-N-1, 12:00 am–12:00 pm. 300/1200/2400/9600. Bible promises and daily devotion readings. Sysop: Dr. Daniel Maedjaja. [Exp. #109.]

Haddocks's Rations. (510)655-0145. From the ridiculous to the sublime. Raise you glass! Free. [Exp. #109.]

The Hardware Depot. (510)942-0762. [Exp. #110.]

IDC BBS. (510)865-7115, 814-8097. 8-N-1, Internet email! Over 1000 msg areas, USENET, RIME, ILink, Internet, SmartNet. Offline mail services. Sysop: Michael King. [Exp. #111.]

Initiative BBS. (510)654-2253. 8-N-1, 300/1200/2400. A political board established to support the Committees of Correspondence. Devoted to documents and discussion related to the left in this country and the future of the left. Sysop: Steve Willett. [Exp. #111.]

ISME–Net. (510)643-6258. 300/1200/2400/9600. Industry Initiatives for Science & Math Ed., Lawrence Hall of Science, K12net educator/students network. [Exp. #110.]

Kanon Tech BBS. (510)235-6839. 8-N-1, 24 hrs., 300/1200/2400/9600/14,400. C libraries, shareware, Echomail net, commercial software/hardware online store. [Exp. #110.]

LANDA Windows-Novell BBS. (510)527-2120, 527-1423. 9600. Sponsored by LANDA, San Francisco Chapter, to focus on Windows and Novell related issues. Sysop: Paul Sosa. [Exp. #110.]

LZ Friendly BBS. (510)273-7830. DOS & Windows files, veterans info, and nationwide msg. base. All welcome. Free. Sysop: Lou Rothenstein. [Exp. #110.]

MajorComm BBS. (510)494-8502. 24 hrs., 1200/2400. Eight lines, swinger board, chat, email, GIFs, games, adult only. Ladies free access. Sysop: Dave. [Exp. #111.]

MDBJ. (510)658-8078. 2400. A BBS for women on the edge. NIRVANAnet. [Exp. #111.]

Metaphysical Magic. (510)946-9877. 6 pm–8 am. 14,400. Astrology, free card readings, discussions, & great files. 100% free. [Exp. #111.]

The New-Ark BBS. (510)796-0947. 24 hrs., 2400/9600. Tradewars, running on two CD-ROMs. Reg required. Sysop: Hiram Wolf. [Exp. #110.]

Night Court BBS. (510)376-4688. FidoNet hub, 80MB, reg NET BRE, Tradewars, Global Wars, and many others. Instant validation. No fee. [Exp. #110.]

Nightline-Vetlink BBS. (510)273-7830. 300/1200/2400/9600/14,400. Nationwide Echo mail link for veterans and others. DOS and Windows files. Free. Sysop: Jon Mansowski. [Exp. #109.]

Olde Stuff BBS. (510)530-3051. 8-N-1, 24 hrs., 2400. Antiques & Collectibles. Buy, sell, learn. Sysop: Bill Clark. [Exp. #109.]

Online Bible Reference. (510)505-9047. 16,800. Religion, news, politics, Windows, DESQview, unique book index. Sysop: Jeff Price. [Exp. #110.]

Otherworld Express. (510)843-9523. 8-N-1, 24 hrs., 2400. Msgs, text files, shareware, freeware, train motif. Free. Sysop: Conductor Chaos. [Exp. #109.]

The Party Wherehouse BBS. (510)256-9809. 8-N-1, 24 hrs., 14,400. Multinode, multinet, chatting, dating, specialty areas—RPGs, sports, and more. Sysop: Party. [Exp. #110.]

PC/400. (510)796-0834. 14,400. 2.7GB files on PC, IBM 3X/400. Free access. [Exp. #111.]

Quasatron BBS. (510)846-6085. 24 hrs., 9600. IBM, Ham radio, electronics, games, graphics, utils, etc. No fees. Sysop: KC Mazie. [Exp. #109.]

Realitycheck. (510)527-1662. 9600. Albany, instant access. NIRVANAnet. [Exp. #111.]

Records Dept. BBS. (510)426-0470 (2400), 426-0793 (14,400). Amiga, IBM, and Mac. Free. Extras for subscribers—FidoNet, games, chat. Sysop: Paul Tibbals. [Exp. #111.]

Russian Connection BBS. (510)651-6809. 8-N-1, 24 hrs., 2400. USA-Russian business/politics oriented. Membership available. Sysop: Alex Alshvang. [Exp. #110.]

Sir James BBS W/ Magick Resource Center. (510)261-6567, 261-6863. Nets: Fido, Pods, Dharma, Bignet. Rooms: pagan/magick, music, adult, Sound Blaster, and more. Free/val. reg. Sysop: Sir James. [Exp. #110.]

Space Quest BBS. (510)865-3987. 24 hrs., 2400. Online games, net msg bases, file areas, in-

ASSOCIATIONS

The Association For Customer Support Professionals. Dedicated to the development and furtherance of customer support as a distinct profession, to the growth of the support community, and to the improvement of support service. Call: (510)865-4515. Internet: tao@well.sf.ca.us. [Exp. #114.]

Computer Professionals For Social Responsibility. Meetings: 2nd Wed., 7:30 pm, UC Berkeley, Evans Hall, Rm. 608-7. Call: Judy Stern, (510)643-7499. [Exp. #109.]

Computer Software Industry Association. CSIA monitors all state legislation that affects the computer software industry and some federal issues. Call: (415)948-9192. [Exp. #114.]

East Bay Entrepreneurs' Network. Meetings: 1st and 3rd Wed., Berkeley Marina Marriott. The organization of East Bay business and professional leaders who exchange business leads for mutual benefit. Call: Sherry Markwart, (510)843-1557. [Exp. #112.]

IEEE Computer Society, San Francisco Chapter. Meetings: Varying Weds, 7:00 pm, SF State. Call: (415)905-4400. [Exp. #109.]

Independent Computer Consultants Association, Northern California Chapter. Meetings are open to all. Only national trade assoc. comprising nonaligned working computer professionals with in-the-trenches experience. Call: ICCA, (415)441-2948. [Exp. #114.]

North Bay Systems Professionals. Meetings: 3rd Wed., 6:00 pm, Embassy Suites Hotel, 101 McInnis Pkwy., San Rafael. NBSP provides a forum and network for systems professionals. Call: Pat Sullivan, (510)769-2648. [Exp. #113.]

San Francisco Robotics Society Of America. Meetings: 1st Wed., 8:00 pm, Exploratorium, San Francisco. Free. Call: Brad Smallridge, (415)550-0588. [Exp. #113.]

Society For Technical Communication, Berkeley Chapter. Meetings: 2nd Wed., dinner at 6:30, program at 7:30, upstairs, Yenching Mandarin Chinese Resturant, 2017 Shattuck Ave., Berkeley. Call: Rick Julius, (510)975-0876. [Exp. #113.]

Software Entrepreneurs' Forum. 3rd Wed., 6:30 pm, Elk's Lodge, 4249 El Camono, Palo Alto. Industry association dedicated to software developers and entrepreneurs, offering information and education on all facets of the software industry. Call: information, (415)854-7219; reservations, (415)965-9003. [Exp. #114.]

United Sysops Association. Mcetings: 2nd Wed., 7:00 pm, Coco's, 1035 S. Mary Ave., Sunnyvale. Organization of bulletin board sysops and users. Call: Bill Strouse, (408)739-9081. BBS: (408)739-8753. [Exp. #114.]

BEST PRICES • HIGHEST QUALITY • GREAT SERVICE

SYSTEM		MB +CPU	BASIC SYSTEM
EISA			
486DX2-66			
(3 Slots Local Bus)	w/256K	$913	$1093
	w/128K	888	1068
486DX-50			
(3 Slots Local Bus)	w/256K	842	1022
	w/128K	817	997
486DX-33			
(3 Slots Local Bus)	w/256K	685	865
	w/128K	660	840
ISA			
486DX2-66			
(3 Slots Local Bus)	w/256K	704	884
	w/128K	679	859
486DX-50			
(3 Slots Local Bus)	w/256K	633	813
	w/128K	608	788
486DX-33			
(3 Slots Local Bus)	w/256K	482	662
	w/128K	457	637
486DX2-66			
(2 Slots Local Bus)	w/256K	640	820

SYSTEM		MB +CPU	BASIC SYSTEM
486DX-50			
(2 Slots Local Bus)	w/256K	$569	$749
486DX-33			
(2 Slots Local Bus)	w/256K	429	609
486-50	w/256K	562	742
	w/64K	537	717
486-33	w/256K	416	596
	w/64K	391	571
386-40	w/128K	143	323
386-33	w/128K	142	323
386SX-33		86	266

BASIC SYSTEM INCLUDES: 486/386/286 Motherboard • 486/386/286 CPU • 1 MB RAM • 101 Keyboard • 1.2 MB or 1.44 MB Floppy Drive • Baby AT or Mini Tower Case with Power Supply • 2FDD & 2HDD Controller Card w/Cable

1 YEAR WARRANTY PARTS & LABOR ON SYSTEMS

MOTHERBOARDS W/O CPU

EISA	
486DX2-66, DX-50, DX-33	
3 Slots Local Bus (AIR) w/256K	$413
w/128K	388
ISA	
486DX2-66, DX-50, DX-33	
3 Slots Local Bus (AIR) w/256K	204
w/128K	179
486DX2-66, DX-50, DX-33	
2 Slots Local Bus (GENOA) w/256K	140
486-50 w/256K	136
486-50 w/64K	108
486-33 w/256K	129
486-33 w/64K	103
386-40 w/128K	89
386-33 w/128K	88
386SX-33 w/CPU	86

CASES

Baby AT Case w/200W PS	$49
Mini Tower Case w/200W PS	49
Big Tower Case w/230W PS	95
Mid Tower Case w/230W PS	75
Super Tower Case w/250W 2 Fans	139

VIDEO CARDS

MGP Card	$10
Diamond Stealth 1 MB VL VGA	163
Orchid Fahrenheit VL VGA	170
VGA 800 x 600 256K	25
VGA 1024 x 768 512K	35
VGA 1024 x 768 1 MB	53
VGA Tseng Lab 1024x768 1 MB Hi-Color	89

MONITORS

Mono 14"	$86
SVGA 14" .39	209
SVGA .28.	249
SVGA .28 Non Interlace	279
ViewSonic 6E	325
ViewSonic 6FS 15"	619
ViewSonic 7 17" .28	1020
ViewSonic 8 20" .25	1570
NEC 3FGX 15"	649
NEC 4FGX 16"	745
NEC 5FGX 17"	1350
SONY 1304	549
SONY 1604 16"	1019

RAM

4 MB-60ns Simm	$149
4 MB-70 Simm	139
1 MB-60	37
1 MB-70	35
256K 70 Simm	10

CALL FOR CPU, MATH COPROCESSOR PRICE

FLOPPY & HARD DRIVES

***Floppy Drives**	
Teac 2.88 MB FDD	$89
Teac 1.2 MB FDD	52
Teac 1.44 MB FDD	46
CONNER	
CP3000 42 MB 28ms	$119
CP30064H 60 MB 19ms	150
CP30084E 85 MB 19ms	178
CP30104H 120 MB 19ms	187
CP30174 174 MB 17ms	213
CP30204 212 MB 16ms	281
MAXTOR	
7120A 130 MB 15ms	$195
7213A 213 MB 15ms	261
7245A 245 MB 15ms	272
7345A 345 MB 15ms	363
LXT 340S 340 MB 15ms SCSI	545
PI-17S 1.5 GB 13ms SCSI	1430
FUJITSU	
M2624FA 520 MB	$769
M2266SA 1.2 GB	1095
M2652SA 2 GB	2178
M2654SA 2.1 GB SCSI II 12ms	2239

CONTROLLER CARDS

IDE 2 FDD/2 HDD 1:1	$12
IDE VL 2 FDD/2 HDD 1:1	49
SCSI Controller	59
SCSI Ultrastor 34F VLB	281
SCSI Ultra 24F (EISA) Future Domain	440
SCSI Ultra 14F	210
SCSI DTC 3290 AS (EISA) w/512K cache up to 4 MB	440
SCSI DTC 3280K	114
SCSI Adaptec AD 1742K (EISA)	475
SCSI Adaptec AD 1542B	255
Promise PM-20440 (SCSI) w/o Cache up to 16MB	231

MODEM CARDS

2400 Int/Ext Modem	$35/88
2400 MNP5 External	101
9600 Internal Modem	170
9600 External Modem	275
9600 Fax/2400 Modem	56

KEYBOARD/MOUSE

101 Keyboard	$19
101 Click	22
Keytronic Keyboard	33
Track Ball 101 K	67
Logitech Mouseman	62

MISCELLANEOUS

Mouse	$12
Super I/O	15
AT I/O Card (2S/1P/1G)	10
MS DOS 6.	43
Windows 3.1	32
120 MB Colorado Tape Back-up	149
Tape	19
Tape Back-Up 120MB Controller Card AB10	69
250 MB Colorado Tape Back-Up	204
Archive 250 MB Tape Back-Up	187
Tape	24
Tape Back-Up 250MB Controller Card FC10	99
Tape Back-Up 250MB Controller Card TC15	189
Diskette Box	5
Power Center	15
Mouse Pad	1
Keyboard Pad	5

NETWARE

ETHERWARE LAN CARDS	
EtherPerfect EP-301	$94
NE 2000 16-Bit	55
NE 1000 8-Bit	55
ARCNET LAN CARDS	
16 Bit	$58
8 Bit	39

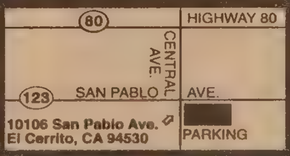
WENTEK Computer

CENTRAL EXPWAY.
SAN TOMAS EXPWAY
SCOTT BLVD
LAWRENCE EXPWAY.
S.J.
101
S.F.
3056-C Scott Blvd.
Santa Clara, CA 95054

(408) 727-4362
Fax: (408) 727-5528
3056-C Scott Blvd.
Santa Clara, CA 95054

MON-FRI: 9:00-6PM
SAT: 10-6PM

(510) 524-0312
Fax: (510) 524-1534
10106 San Pablo Ave.
El Cerrito, CA 94530



Prices subject to change w/o notice. Cash • Cashier's Check • Money Order. Personal Checks from Bay Area Only!

USER GROUPS

ACCESS

Microsoft Access Developers Group. Now forming. Downtown San Francisco. Send name, address, and fax # to receive meeting and membership info, to: Computer/Management Solutions, 235 Montgomery St., #750, SF, CA 94104 [Exp. #110.]

ADOBE

Systems Adobe Technology Exchange: San Francisco Peninsula/South Bay Chapter. Meetings: 2nd Wed., 7:00 pm, M&T Publishing, 411 Borel Ave., San Mateo. Call: ATX, (408)562-6104. [Exp. #109.]

AMIGA

3rd Dimension—Imagine/Lightwave User Group. Meetings: 1st & 3rd Mon., 6:30 pm, Computer Showcase, 510 1/2 Fredrick St., SF. Call: Ollie, (415)863-8792. [Exp. #111.]

AAA—Amiga Addicts Anonymous. Meetings: 3rd Tues., Concord Water District Bldg., 1311 Concord Ave. Classes, monthly disks, info line. Call: (510)935-0829. [Exp. #109.]

ACCESS—Amiga & Commodore Computer Enthusiasts Society. Meetings: 2nd Thurs., 7:00 pm, Livermore Airport Terminal. Call: Paul, (510)829-6053. [Exp. #109.]

AUM—Amiga Users Of Marin. Meetings: 3rd Wed., 7:30 pm, College of Marin Science Center, Rm. 191, Kentfield. Beginners class at 6:00 pm. Call: (415)456-1411. BBS: (415)485-5895. [Exp. #112.]

AWEST Amiga Users In SF. Meetings: 1st Thurs., 7:00 pm, Laguna Honda School, Conference Rm., 1350 7th Ave., San Francisco. Call: (415)584-8406. BBS: (415)824-8774. [Exp. #112.]

FAUG—First Amiga User Group. Meetings: 1st Tues., 7:30 pm, HT Electronics, 275 N. Matilda Ave., Sunnyvale. Q &A, new product demos, public domain software. Call: Mike Fisher, (415)855-9816; BBS: (415)595-2479; Usenet: mikef@hpspd.hp.com. [Exp. #111.]

RE—AMIGA Redwood Empire Amiga User Group. Meetings: 3rd Tues., 7:30 pm, Rohert Park Jr. HS, RM. C-5, 7165 Burton Ave., Rohnert Park. Call: (707)523-9978. BBS: (707)795-2717. [Exp. #112.]

APPLE

PAUG—Peninsula Apple User Group. Meetings: 3rd Thurs., 7:00 pm, Ampex Cafeteria, 411 Broadway, Redwood City. All Apples. Beginners, advanced, Q&A, new product demon, PD software. Call: Roger Laker, (415)367-8657. [Exp. #113.]

AT&T

AT&T Computer User Group. Meetings: 1st Wed., general discussion at 6:00 pm, main program at 7:00 pm, 50 Fremont St., 40th Floor, San Francisco. Call: Jim Lansing, (415)885-6631 or Joe Mahoney, (415)584-6510. [Exp. #114.]

AT&T UNIX Computer User Group. Meetings: 4th Wed., main program begins at 7:00 pm, location varies, South Bay area. Call: Thad Floryan, (408)985-7100; USENET, thad@cup.portal.com. [Exp. #114.]

ATARI

Bay Area Atari Users Group. Meetings: 1st Mon., 7:30 pm, Agnews Aud., 2nd fl., San Jose. Write: c/o 3691 Eastwood Cir., Santa Clara 95054. Call: Joe Fischer, (408)988-3065. [Exp. #114.]

DACE—Diablo Atari Computer Enthusiasts. Meetings: 1st Thurs., Contra Costa Water District Bldg., 1331 Concord Ave., Concord. Call: Dan Galant, (510)689-8256. [Exp. #113.]

COMMODORE

ACCESS—Amiga & Commodore Computer Enthusiasts Society. Meetings: 2nd Thurs., 7:00 pm, Livermore Airport Terminal. Call: Paul, (510)829-6053. [Exp. #109.]

C=HUG (Commodore Hayward User Group). Meetings: 2nd Sat., 2:00 pm, Palma Ceia Park. (510)531-3734. [Exp. #112.]

CWEST Commodore 64/128. Meetings: 3rd. Mon., 7:00 pm, UC Med Center, Bldg. C, Rm. C-213, 521 Parnassus, San Francisco. Call: (415)626-9946. [Exp. #112.]

CONTACT MANAGEMENT

Bay Area TeleMagic User Group. Meetings: 2nd Wed., 4:00 pm. Call: George Workman, (408)476-6385. [Exp. #110.]

The Golden Gate Telemagic User Group. Meetings: 2nd Wed., 4:30 pm, Flood Bldg., Room 1213, 870 Market St., San Francisco. Call: 1-800-238-3370. [Exp. #109.]

CORELDRAW

CorelDraw User Group. Meetings: 3rd Thurs., 6:00 pm, ACAD: Association of Corel Artists and Designers, Northern CA Chapter. Call: Matt O'Malley. 1-800-462-5763. [Exp. #114.]

CP/M

San Francisco Computer Society. Meetings: 4th Mon., 7:00 pm, 7th Ave. Presbyterian Church, 1329 7th Ave., San Francisco. Call: Bob Forsberg, (415)885-6202. [Exp. #113.]

DBASE

Association Of Database Developers, dBASE SIG. Meetings: 4th Tues., 7:30 pm, The Gatehouse, Ft. Mason Center. $5.00 guest fee, free to ADD members. Call: (415)281-5638. [Exp. #110.]

Association Of Database Developers, Fox SIG. Meetings: 1st Thurs., 7:00 pm, PG&E Tower, 77 Beale St., Rm. 1760. $5.00 guest fee, free to ADD members. Call: (415)281-5638. [Exp. #110.]

DEC

BayVAC. Meetings: approx. monthly. Users of DEC hardware and software. Call: Rich Taylor, (408)776-4978. [Exp. #113.]

FREEDOM, PRIVACY, AND TECHNOLOGY

BMUG SIG On Freedom, Privacy, And Technology. Meetings: Last Sun., 2:00 pm, BMUG office, 2055 Center St., Berkeley. Call: Judi Clark, (510)549-2684. [Exp. #110.]

IBM AND COMPATIBLES

Berkeley PC User Group. Meetings: 2nd Mon., 7:00 pm, Winners Circle Systems, 2618 Telegraph Ave., Berkeley. Presentations followed by discussion, PD library, newsletter, Geo Ensemble SIG. No charge. Call: Mel Mann, (510)526-4033. [Exp. #110.]

Delta PC Users Group. Meetings: 3rd Sat., 10:00 am. Pittsburg Adult Ed., Rm. 23, 20 E. 10th St. Call: (510)427-2255, ext. 744. [Exp. #110.]

DVPC—Diablo Valley User Group. Meetings: 1st Thurs., 7:30 pm, Bank of America, Bldg. B, Clayton Rd. at Galindo, Walnut Creek. SIGs include WordPerfect, Windows, Paradox, Beginner's, Visual Basic, education/entertainment, and new users. Call: (510)943-1367. [Exp. #110.]

EastBay FOG. Meetings: 2nd Wed., 7:30 pm, Episcopal Church of St. John-in-Montclair, 1707 Gouldin Rd., Montclair. All microcomputers, MS-DOS, CP/M. Call: (510)653-2627. [Exp. #109.]

Golden Gate Computer Society. Meetings: 4th Mon, 7:00 pm, San Rafael Community Center, 618 B St., San Rafael. Free intro to computers class at 6:00 pm. Call: (415)927-2909. [Exp. #113.]

IBM Technical SIG. Meetings: 2nd Thurs., 7:00 pm, Cubberley Community Center, 4000 Middlefield Rd., Rm. H-1, Palo Alto. Sponsored by Software Entrepreneurs' Forum. Call: Peter Harris, (415)329-1880. [Exp. #110.]

Micromate–CP/M–DOS Users Group. Meetings: 1st Thurs., 7:30 pm, Eclectic computer buffs. Chabot Observatory, 4917 Mountain Blvd., Oakland. Call: Ed Miller, (510)376-1611. [Exp. #109.]

PC Clone User Group. Meetings: 2nd Mon., 7:00 pm, Ft. Mason, Rm. C217. Visitors $3. Call: (510)684-0107. BBS: (415)652-1736 [Exp. #110.]

PC Clubhouse. Meetings: 1st Fri., 7:30 pm, Meiklejohn Hall, CSU Hayward. To share knowledge and PD/shareware software. Club has several BBSes in East Bay and Amador Valley. Call: (510)483-9500, 429-1007. BBS: (510)889-1932 (Hayward). [Exp. #112.]

PC Users Group Of The Redwoods (PCUGR). Meetings: 2nd Thurs., 6:30 pm, Santa Rosa Veterans Memorial Building. Call: (707)527-USER. [Exp. #110.]

Peninsula Computer Club. Meetings: 2nd Thurs., 7:30 pm, Social Room, 222 Laurel St., San Carlos. DOS and CP/M libraries. Call: Larry Welling, (415)593-9981. BBS (415)571-9259. [Exp. #109.]

San Francisco Business Computers. Meetings: 4th Tues., 5:30 pm. For those who use computers in business. Visitors $5. Call: Jordan Rosenberg, (415)788-5338. [Exp. #111.]

San Francisco PC Users Group. Meetings: 3rd Tues., 6:15 pm SIGs, 7:30 pm General Meeting. Fort Mason, Bldg. A. Call: (415)979-5879. [Exp. #114.]

Silicon Valley Computer Society—SVCS. Meetings: 2nd Wed., 7:30 pm, Hewlett-Packard, Bldg. 48, Oak Room, 19483 Pruneridge Ave., Cupertino. Call: (408)956-0864. BBS, (408)956-0317. [Exp. #113.]

South Bay WordPerfect User Group. Meetings: Monthly, dates vary. Saratoga Community Library. Free. Call: Martin Van Derpool, (408)238-8434. [Exp. #113.]

Stanford Palo Alto Area User Group. Meetings: Last Wed., 7:30 pm, Varian Aud., 3075 Ilansen Way, Stanford. DOS/Windows. Free. Call: (415)329-8252. [Exp. #114.]

LANTASTIC

LANtastic User Group Of The East Bay. Meetings: 6:00 pm, 2770 Marin Blvd., Berkeley. Call: Loretta, (510)444-1441. [Exp. #109.]

LAPTOPS

HPX HP Laptops & Handhelds. Meetings: 2nd Sat., Sunnyvale. Call: Michael Felsenstein, (415)564-8279. [Exp. #111.]

LEGAL

SF Bar Assoc. WordPerfect User Group. Meetings: 3rd Wed., noon, SF Bar Assoc. Boardroom, 7th fl., 685 Market St. Brown bag meetings. Call: (415)421-5650. [Exp. #114.]

MACINTOSH

A32 Macintosh User Group. Meetings: 2nd Sat., 10:00 am, GTE Bldg 3 Cafeteria, 100 Ferguson Dr., Mountain View, corner of Central Expressway and Highway 237. Call: (408)263-0398. [Exp. #111.]

BMUG—Berkeley Macintosh User Group. Meetings: Every Thurs., 6:00 pm, Physical Sciences Lecture Hall, UC Berkeley Campus. Call: (510)549-BMUG. [Exp. #109.]

Diablo Valley Macintosh User Group (DVMUG). Meetings: 3rd Tues., 7:00 pm, Old Republic Title Co., 3000 Clatyon Rd., Concord. Get together w/Mac and Performa users. Enjoyable SIG meetings. Call: (510)945-4548. [Exp. #111.]

International Macintosh User Group (IMUG). Meetings: 3rd Thurs., 6:45 pm, location varies. A forum for multilingual computing. Call: Roger Sherman, (415)859-5146. [Exp. #113.]

Macintosh SIG. Meetings: 3rd Tues., 7:00 pm, Apple Cafeteria, City Center 4, De Anza and Rodrigues, Cupertino. Sponsored by Software Entrepreneurs' Forum. Call: Jeff Cherniss, (408)999-2524. [Exp. #110.]

MaCruzers. Meetings: 2nd Wed., Santa Cruz. Call: Peter Visel, (408)454-0403. [Exp. #109.]

Macs Of Marin. Meetings: Last Wed., 7:30 pm, Corte Madera Rec Center, 498 Tamalpais Dr., Corte Madera. Marin County Mac User Group for all levels of expertise, beginners welcome, SIGs. [Exp. #112.]

PAUG—Peninsula Apple User Group. Meetings: 3rd Thurs., 7:00 pm, Ampex Cafeteria, 411 Broadway, Redwood City. All Apples. Beginners, advances, Q&A, new product demos, PD software. Call: Roger Laker, (415)367-8657. [Exp. #113.]

SPC Apple User Group. Meetings: 2nd Wed., 7:30 pm, Fremont Main Public Library, 2400 Stevenson Blvd. Call: Dean Fearn, (510)881-9160. [Exp. #112.]

MULTIMEDIA

DesignSIG. Meetings: 3rd Tues., 6:00 pm. New SIG open to independent businesspeople in graphic arts, word processing, and related fields. Focus to share concerns and solutions related to running own business. Call: Bill Brent, (415)282-7368. [Exp. #113.]

International Interactive Communications Society—IICS. Meetings: 2nd Tues., 7:00 pm, alternate locations San Francisco and South Bay. For people involved or interested in developing and using interactive multimedia technologies. Call: IICS Hotline, (415)252-8114. [Exp. #113.]

Macromedia User Forum. Meetings: 1st Wed., 7:00 pm, 600 Townsend, at 7th St., San Francisco. Authoring, 3-D, content, and tools. Call: John Dowdell, (415)665-3916 (days); email: 71165.3065@compuserve.com. [Exp. #112.]

Multimedia SIG. Meetings: 1st Thurs., 7:00 pm. SIG of Software Entrepreneurs' Forum. Call: Ralph Gilman, (408)746-0551. [Exp. #111.]

NANOTECHNOLOGY

The Assembler Multitude. Meetings: every other Mon., 7:30 pm, University Lutheran Church, 1611 Stanford Ave., Palo Alto. An open discussion of new technical developments in Nanotechnology and social consequences and dangers of Nanotechnology. Organized by Ted Kaehler. Email: Kaehler2@AppleLink.Apple.com. Address: 20525 Mariani Ave., MS 301-3D, Cupertino, CA 95015. [Exp. #110.]

Nanosystems Study Group. Meetings: Alternate Mondays, 7:30 pm, University Lutheran Church, 1611 Stanford Ave., Palo Alto. The study group will go through Eric Drexler's book, *Nanosystems: Molecular Machinery, Manufacturing, and Computation.* Announcements and mailing list, contact: Ted Kaehler, email: Kaehler2@AppleLink.Apple.com. Phone: (408)974-6241. [Exp. #110.]

NETWORKING

NetSIG. Meetings: 4th Tues., 7:00 pm, Novell Sunnyvale. Networking SIG for Software Developers. SEF group. Call: Skip Addison, (408)277-5867. [Exp. #111.]

NEXT

BANG—Bay Area NeXT Group. Meetings: 3rd Wed., 7:00 pm, Terman Aud., Stanford. Presentations and lectures. Call:

continued on page 304

HKG COMPUTERS
Hardware Knowledge Group, Inc.

$0 DOWN
90 DAYS SAME AS CASH

ON APPROVAL OF CREDIT

1 YEAR PARTS & LIFETIME LABOR WARRANTY!

All Systems Include: Mini Tower Case; 1MB RAM; IDE Controller (2HD, 2FD); AT I/O (2s, 1p, 1g) Ports; 101 Enhanced Keyboard

386SX-33

- 80 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

$689

386DX-40

- 64K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

$769

486SX-25

- 64K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

intel inside

$839

486DX-33

- 64K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

intel inside

$1029

486DX-50

- 64K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

intel inside

$1179

486DX2-66

- 64K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

intel inside

$1269

486DX-33
VESA Local Bus

- 64K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

intel inside

$1049

486DX2-66
VESA Local Bus

- 64K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

intel inside

$1289

486DX-50 EISA

- 256K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

intel inside

$1349

PERIPHERALS AND ACCESSORIES

MONITORS

Impression 102 4x768 .39dp	$210
Impression 1024x768 .28dp	260
Impression 1024x768 .28, NI	285
Impression 7	850
Viewsonic 4E	300
Viewsonic 6E	339
Viewsonic 6FS	550
Viewsonic 7	999
NEC 3FGX	635
NEC 4FG/OEM	725/635

HARD DRIVES

40 MB IDE	$140
80 MB IDE	175
130 MB IDE	200
170 MB IDE	235
213 MB IDE	290
245 MB IDE	310
340 MB IDE	370
540 MB IDE/SCSI	CALL
1.2/1.7 GB	CALL

VIDEO CARDS

Trident 512K	$40
Trident 1 MB	60
Diamond Stealth VLB	185
Diamond 24X	185
ATI Graphics Ultra	280
ATI Graphics Ultra Pro, 2 MB	450
Orchid Fahrenheit VLB 1 MB	185

PRINTERS

Panasonic 1123	$210
Panasonic 2123	245
Panasonic KX-P4410	645
Panasonic KX-P4430	895
HP Laser IIP+	785
HP Laser IIIP	999
HP Laser IV	1420

MISC.

2400B Modem	$38
Fax/Modem (9600/2400)	70
Fax/Modem 14,400/14,400 Int/Ext (new Item)	180/200
Summit Tape Back-Up	
120 MB	185
250 MB	230
Colorado Tape Back-Up	
120 MB	185
250 MB	245
Archive Tape Back-Up 250 MB	195
Ethernet Card 16-Bit	99
Logitech Scanman 32 w/OCR Software	139/185
Logitech Scanman 256 w/OCR Software	249/299
3 Button Mouse	15
Logitech First Mouse/MouseMan	40/75
1.2/1.44 MB Floppy Drive	50
Chicony 101 Enhanced Keyboard	20

MONTHLY SPECIALS

• SONY CD-ROM w/CARD	$230
• FAX MODEM 14400/14400 INT/EXT	$180/200

MULTIMEDIA

HKG Multimedia Package A — $450
- Panasonic/Sony CD-ROM
- 3 Software Titles
- Soundblaster Pro Sound Card

HKG Multimedia Package B — $485
- Panasonic/Sony CD-ROM
- 3 Software Titles
- Mediavision 16-bit Sound Card

Software Titles To Choose From:
- San Diego Zoo Presents "The Animal"
- World Atlas v3.2 (Software Toolworks)
- Stellar Steven
- Sherlock Holmes
- Game Master
- LOOM
- Beauty & The Beast Storytime
- Jones in the Fast Lane
- Chessmaster 3000 MPC
- King's Quest V
- Arcade Battles

Accessories

Speakers	Add $12
MIDI Kit	Add $45
Windows 3.1 on CD	Add $50
Microsoft Bookshelf	Add $50
Video Blaster	$370
Sound Blaster Pro	$140
Mediavision 16-bit	$170

We Do Custom Programming And Software Consulting

- Dos
- Windows
- C,C++
- Dbase
- FoxPro
- Clipper

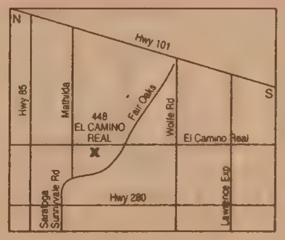
Call for more info

HKG COMPUTERS
Hardware Knowledge Group, Inc.

448- EAST EL CAMINO REAL
SUNNYVALE, CA 94087

M-F: 10am-7pm
Sat: 10am-7pm
Sun: 11am-6pm

(408)-SEEK-HKG (733-5454)
Fax: (408) 733-5456



Corporate PO's Welcome

MasterCard

Prices Subject To Change W/O Notice

VISA

Buying a very low priced computer makes you a very smart shopper...
All PC shops are similar and deliver the same type of quality and support...
The only factor considered in choosing between two
PC shops should be the price...

. . . . NOT!!!

If you are in the market to buy a PC, you might want to stop here and read through our ad. Isn't it kind of confusing to go through this magazine trying to locate the right PC shop? Doesn't it look like we all have the same exact thing but with different pricing? Unfortunately, due to the nature of this fast paced industry where technological advancements are of frequent occurrence, the number of "Don't Know" shoppers has been on the rise. Today, for instance, computer buyers are ending up with systems that lack many of the essential features that they could have had in their systems for minimal or no extra cost at the time of the purchase, simply because they did not know. As they *Don't* say, "What You *Don't* Know *CAN* Hurt You"

THE FOLLOWING ARE A FEW OF THE ADDED FEATURES TO OUR HIGH-END SYSTEMS:

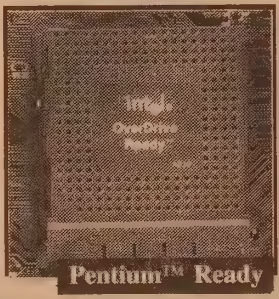
2 VL-BUS Slots "Buffered"

50MHz Local Bus
NOT RECOMMENDED

VESA Local Bus

These two Bus Mastering "Buffered" VL-Bus slots, guarantee compatibility with any new VL-Bus add-in card, without causing CPU overload. Also, a Buffered VL board will guarantee smooth operation of the local bus sub-system.

Pentium OverDrive Socket



In the heart of our Pentium upgradable systems there is an easy to use ZIF socket designed to accept Intel Pentium OverDrive Microprocessors. A feature that will enable you to upgrade your system to future technology.

Weitek P9000 Viper 50 WinMarks*

WEITEK
POWER
9000
8000-033-PFP
JSD Δ 9249A
ⓂWEITEK-H K
Weitek™ P9000

The new Weitek P9000 Video accelerator chip delivers the ultimate performance in local bus graphics. With 50M WinMarks* , users have found their savior when using graphic intensive applications.

*Based on PC Win Bench 2.5

GIVE US A CALL, AND SEE WHAT WE'RE ALL ABOUT!

IF YOU ARE A V e r y A bandoned R eseller!

Read on. If not, we caution you to stop right here for what you are about to read might be too ugly for your taste.

ARE YOU:

- Getting second class attention from your supplier?
- Having to wait forever for your RMA items?
- Experiencing quality deterioration because your supplier is cutting corners trying to save pennies?

IS YOUR SUPPLIER:

- Too busy to take care of your needs no matter how small?
- Making you look bad in front of your customers for late deliveries?
- Making you feel that your business is not worth his time?

If you answered YES to at least one of the above questions, then do yourself and your customer a favor and call NOW's hotline at 408/894-7061
If you answered NO to all the questions, hold on to your vendor, for he belongs to a rare species on its way to extinction.

Quotes from our VAR customers

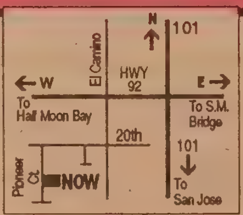
> *"Integrity, professional courtesy, up-to-date R&D, competitive pricing, make dealing with NOW a smooth experience. Finally a VAR's best friend."*
> Ron Sen
> SF VAR

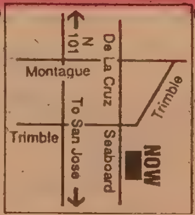
> *"If you are looking for a company that offers a high level of service, operates with integrity, has reliable products along with excellent technical support, then give NOW a call!"*
> Douglas Olds
> ACE Computer Consultant

> *"NOW-The best Quality, reliability, and after sale support I've experienced"*
> *"NOW-A pleasant buying experience from order to delivery"*
> *"NOW-A company that understands my marketplace and supports me completely"*
> Tony Olszewski
> Office Products Today

NOW Electronics Inc.

San Mateo
Tel: 415/345-4577
Fax: 415/345-4576
2031 Pioneer Court Ste. 2
San Mateo, CA 94403
Hours: M-F 9-6 Sat. 11-6



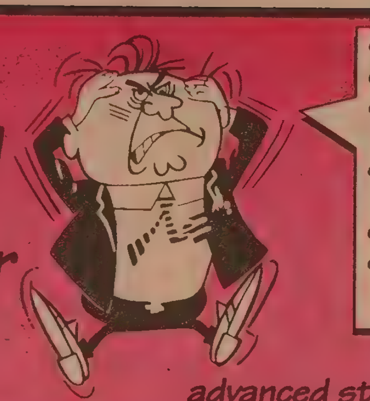


San Jose
Tel: 408/894-7060
Fax: 408/894-7062
2526 Seaboard Ave.
San Jose, CA 95131
Hours: M-F 9-7 Sat. 11-6

Japan
日本国内でのお問合わせ：
ナウエレクトロニクスジャパン
Fax: 011-81-975-43-8451
〒870-91 大分中央郵便局私書箱191号

* A hard copy quote will be required. The quote must be for equal value items. Cash prices. Prices are subject to change without notice. Not responsible for typographical errors.

Are You Suffering From Computer Anxiety?



- Should I buy ISA, EISA or VESA?
- Which is better... IDE, SCSI or an ESDI Hard Drive?
- Has the true 50MHz VESA Local Bus been standardized yet?! Is it safe to buy?
- What the heck is "Bus Mastering"? Does my system support it?
- Do all hard drives support the Local Bus?
- Is the P24T OverDrive the same as the Pentium?

WHO CAN HELP???

Call NOW before you get to this advanced stage where there is no going back.

DID YOU KNOW THAT...

-The VESA Local Bus (VL-Bus) specification is a standard set of architecture, timing, interface specs that permits all VL-Bus products to be interchangeable.

-In a VL-Bus design, adapter boards connect directly to the CPU Bus. This additional loading on the CPU signal can cause unreliable CPU operation or even system lock up.

-A buffer in its simplest form is an IC (chip) with an input (source) and an output (load). The purpose of this IC is to protect its input signal from the undesirable effects presented by its output such as capacitive loading.

-On a buffered VL-Bus motherboard each VL slot regardless of what's in it appears to the CPU as a fixed non-capacitive (light) load. This allows you "the user" to install any type of VL-Bus compatible adapter board on your system without suffering from loading effects.

MICRONICS VESA VL-BUS Intel 66MHz 486DX CPU

Pentium Overdrive Ready

- 66MHz Intel 486DX2 CPU
- 8MB RAM, 256K Cache
- 240MB Quantum ProDrive 256K Cache 11ms
- 32-Bit VESA Integrated Local Bus IDE Interface
- 32-Bit ATI Ultra Pro Local Bus 1MB VRAM
- NEC 3FGX 15" (or MAG 15" MX15F) Monitor
- 1.2 and 1.44 High Density Floppy Drives
- Medium Tower Case 250W PS Dual Fans
- 101 Keytronic KeyBoard
- 2-VESA and 6-ISA Slots

Add $295 for Ultra Stor 34F SCSI-2 VLB Option 4 to 5 times faster than IDE

$2695

MICRONICS VESA VL-BUS Intel 33MHz 486DX CPU

Pentium Overdrive Ready

- 33MHz Intel 486DX CPU
- 4MB RAM, 256K Cache
- 122MB Quantum ProDrive 256K Cache 11ms
- 32-Bit VESA Integrated Local Bus IDE Interface
- 32-Bit ATI Ultra Plus Local Bus 1MB RAM
- 14" SVGA .28dp NI Monitor
- 1.2 and 1.44 High Density Floppy Drives
- Medium Tower Case 250W PS
- 101 Key Tronic KeyBoard
- 2-VESA and 6-ISA Slots

$1795

MICRONICS EISA VL-BUS SCSI-2 FILE SERVER

Pentium Overdrive Ready

- MICRONICS EISA VL-BUS Motherboard
- 66MHz Intel 486DX2 CPU
- 16MB RAM 60ns, 256K Cache
- Maxtor MXT-540SL 540MB 8ms
- Adaptec 1742 SCSI-2 EISA Controller
- ATI Ultra Pro VLB/ 1MB or AMI EISA Fastview
- 14" SVGA NI .28dp Monitor
- 1.2 and 1.44 High Density Floppy Drives
- Full Tower Case 300W PS Dual Fans
- 101 Key Tronic KeyBoard
- 8 32-Bit EISA/2-VESA BUS Mastering slots
- Pentium OverDrive ZIF Socket

$3895

American Megatrends SuperVoyager VLB Intel 33MHz 486DX CPU

Pentium Overdrive Ready

- 33MHz Intel 486DX CPU
- 4MB RAM, 256K Cache
- 122MB Quantum ProDrive 256K Cache 11ms
- Integrated IDE Controller with 16550 UART
- 32-Bit ATI Ultra Pro Local Bus 1MB VRAM
- 15" ADI 4G .28 NI Flat Screen Monitor
- 1.2 and 1.44 High Density Floppy Drives
- Medium Tower Case 230W PS
- 101 Key Tronic KeyBoard
- 2-VESA Local 6-ISA Slots
- Pentium OverDrive ZIF Socket

$2095

American Megatrends SuperVoyager VLB Intel 66MHz 486DX2 CPU

Pentium Overdrive Ready

- 66MHz Intel 486DX2 CPU
- 8MB RAM 60ns, 256K Cache
- 340MB Hard Drive 13ms w/64K Cache
- 32-Bit Diamond Viper VLB 2MB VRAM Based on Weitek P9000, 50M Win Marks
- 32-Bit Promise Tech VLB IDE 4MB Caching Controller, Up to 10MB "Real" Data Transfer rate
- NEC 3FGX 15" (or MAG 15" MX15F) Monitor
- 1.2 and 1.44 High Density Floppy Drives
- Full Tower Case 300W PS Dual Fans
- 101 Key Tronic KeyBoard
- 2-VESA Local 6-ISA Slots
- Pentium OverDrive ZIF Socket

$3395

American Megatrends Enterprize III EISA-VESA Intel 66MHz 486DX2 CPU

Pentium Overdrive Ready

- 66MHz Intel 486DX2 CPU
- 16MB RAM 60ns up to 256MB, 256K Cache
- 880MB SCSI-2 Toshiba 512K Cache 12ms Hard Drive
- 32-Bit Ultra Stor 34F SCSI-2 VLB Controller
- 32-Bit ATI Ultra Pro VLB 1MB VRAM
- NEC 3FGX 15" (or MAG 15" MX15F) Monitor
- Dual 1.2 and 1.44 High Density Floppy Drives
- Full Tower Case 300W PS Dual Fans
- 101 Key Tronic KeyBoard
- 2-VESA/EISA and 6-EISA Bus Mastering Slots
- Pentium OverDrive ZIF Socket

$4395

GUARANTEE TO BEAT ANY PRICE* • 1 YEAR PARTS WARRANTY • LIFE-TIME LABOR WARRANTY

1

ORCHID · Genoa Systems Corporation · Diamond · NICE

- VESA Local Bus Motherboard
- 66MHz Intel 486DX2 CPU
- 256K 20ns Cache
- 8MB RAM up to 64MB
- 245 Quantum Hard Drive 11ms
- 1.2 and 1.44MB TEAC Floppy Drives
- 15" ADI 4G .28dp NI Flat Monitor
- 32-Bit Stealth 24 VLB 1MB VRAM or Orchid Fah. 1280 VLB 1MB
- 32-Bit IDE VLB Controller
- Medium Tower Case 230W PS
- 101 KeyTronic Keyboard
- 2 Ser, 1 Par and 1 Game Ports
- Built-in Math Co-processor
- CPU Heat-sink and Fan

Diamond FastBus VLB	$2350
ORCHID SuperBoard VLB	$2250
NICE USA ISA-VLB	$2195
Genoa TurboExpress VLB	$2150

2

ORCHID · Genoa Systems Corporation · Diamond · NICE

- VESA Local Bus Motherboard
- 33MHz Intel 486DX CPU
- 64K 20ns Cache
- 4MB RAM up to 64MB
- 170 Western Digital HD 12ms
- 1.2 and 1.44MB TEAC Floppy Drives
- 14" AcerView 34T .28dp NI Monitor
- 32-Bit Genoa 8500 VLB or ET4000 VLB Controller
- 32-Bit IDE VLB Controller
- Mini Tower Case 200W PS
- 101 Enhanced Keyboard
- 2 Ser, 1 Par and 1 Game Ports
- Built-in Math Co-processor

Diamond FastBus VLB	$1650
ORCHID SuperBoard VLB	$1550
NICE USA ISA-VLB	$1475
Genoa 486DX2/66MHz VLB	$1425

3

Intel 486DX2/66MHz CPU	$1495
Intel 486DX/50MHz CPU	$1395
Intel 486DX2/50MHz CPU	$1330
Intel 486DX/33MHz CPU	$1175

- ISA Motherboard and Intel CPU
- 64K 20ns Cache
- 4MB RAM up to 32MB
- 130MB Maxtor IDE HD 15ms
- 1.2 and 1.44MB TEAC Floppy Drives
- 14" SVGA .28dp Monitor
- SVGA 1MB RAM Video Card
- Mini Tower Case 200W PS
- 101 Enhanced Keyboard
- 2HD/2FD IDE Controller
- 2 Ser, 1 Par and 1 Game Ports
- Built-in Math Co-processor

Upgrades:
Add $25 for 256K Cache
Add $120 for 8MB RAM
Add $100 for 210MB HD
Add $45 for NI Monitor

4

Intel 486SX/33MHz CPU	$949
Intel 486SX/25MHz CPU	$879
Cyrix 486DLC/40MHz CPU	$899
Cyrix 486DLC/33MHz CPU	$849
AMD 386DX/40MHz CPU	$779
Intel 386DX/33MHz CPU	$779

- ISA Motherboard and CPU
- 64K Fast Cache
- 2MB RAM up to 32MB
- 80MB DE HD 17ms
- 1.2 or 1.44MB TEAC Floppy Drives
- 14" SVGA Color Monitor
- SVGA 512KB RAM Video Card
- Mini Tower Case 200W PS
- 101 Enhanced Keyboard
- 2HD/2FD IDE Controller
- 2 Ser, 1 Par and 1 Game Ports

Upgrades:
Add $55 for 4MB RAM
Add $50 for 130MB HD
Add $45 for a 2nd Foppy
Add $20 for 1MB Video

OPTIONS & UPGRADES

Hard Drives

105MB	$165
130MB	$195
170MB	$220
210MB	$275
250MB	$325
340MB	$425
535MB	$850
535MB Plus	Call

Monitor/Video

NEC, Sony, Nanao, MAG, ViewSonic, ATI,, Diamond, Genova, Orchid, etc. ...Please Call

Fax/Modem

2400 Modem	$35
96/24 Fax/Modem	$55
96/96 Fax/Modem	$145
14.4/14.4 Fax Modem	$195
Intel Satisfaction 400	$395
National Fax/Modem/Voice/Mail	$199

Storage Devices

120/250MB Tape Back-up	$165/195
120/250MB Trakker Parallel	$359/420
21MB Floptical Drive w/Kit	$350
2.88MB Floppy Drive	$99

Internal CD-ROM

Mitsumi 350ms w/Card	$200
SONY 31A 490ms w/Card	$295
SONY 541 380ms w/Card	$425
Texel 3024 265ms	$399
NEC CDR-84 280ms	$495
Toshiba XM-3401B 200ms	$479

MultiMedia

MediaVision Fusion CD 16 Kit	$499
Creative Labs Upgrade Kit	$499
Pro AudioSpectrum 16bit	$189

MultiMedia (Continued)

Sound Blaster Pro Basic	$139
Sound Blaster Pro 16bit	$239
Video Blaster (TV in PC)	$350

Pointing Devices

3-button Mouse	$19
Logitech 1st Mouse	$35
Logitech Mouseman	$69
Logitech Trackman	$79
SummaSketch III 4 Button	$299
MS DOS 5.0	$49
Windows 3.1	$49

Guarantees:

1. 72 Hour Burn-in and Quality Check
2. Original Brand New Parts and Manuals
3. 100% IBM, NOVELL Compatibility
4. Life-time Technical Support and Advice
5. Prompt Courteous Sales & Tech Staff
6. 30 Days Moneyback Guarantee

PARTIAL CUSTOMER LIST

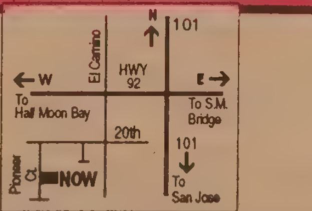
Federal Govt, Lockheed Space and Missile, State of California, FederalExpress, Metropoitan Insurance, Adaptec, Cal-Trans, Nat'l Semi-conuctors, AT&T, UC Berkeley, Lawrence Livermore Labs...and many more

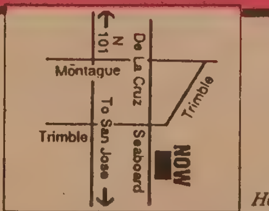
(Contacts and Phone #'s are available upon request)

CALL FOR PRINTERS & SOFTWARE

NOW Electronics Inc.

San Mateo
Tel: 415/345-4577
Fax: 415/345-4576
2031 Pioneer Court Ste. 2
San Mateo, CA 94403
Hours: M-F 9-6 Sat. 11-6





San Jose
Tel: 408/894-7060
Fax: 408/894-7062
2526 Seaboard Ave.
San Jose, CA 95131
Hours: M-F 9-7 Sat. 11-6

Japan
日本国内でのお問合わせ:
ナウエレクトロニクスジャパン
Fax: 011-81-975-43-8451
〒870·91 大分中央郵便局私書箱191号

* A hard copy quote will be required. The quote must be for equal value items. Cash prices. Prices are subject to change without notice. Not responsible for typographical errors.

HD

COMPUTER

EDITOR'S CHOICE NO.1 BYTE JUNE 1993

BEST VALUE CAD AND GRAPHICS

JUNE 1993
BYTE
BEST VALUE
DOS CAD
SYSTEM

BEST VALUE WINDOWS SYSTEM

JUNE 1993
BYTE
BEST VALUE
WINDOWS
SYSTEM

BEST VALUE UNIX SYSTEM

JUNE 1993
BYTE
BEST VALUE
UNIX
SYSTEM

SUNNYVALE TEL: (408)720-0493
FAX : (408)720-1967

EL CERRITO TEL : (510)528-0753
FAX : (510)528-0757

SACRAMENTO TEL : (916)483-4278
FAX : (916)483-4826

HD COMPUTER

UNBEATABLE SYSTEM VALUES

"brand name components, plentiful room for expansion, ample setup options, and generous service policies are the hallmarks of this machine"

PC Sources

"definitely not another 'run of the mill' machine"

"more experienced user searching for top performance might want to consider HD Computer..."

Computer Shopper

Free Software Option:
1.PFS:Windows Works
2.PFS:Publisher
3.PFS:Business Plan
4.PFS:Prospect/DOS
5.PFS:First Choice/DOS

VL-B 486 VESA LOCAL BUS

- ZIF Socket for Easy Upgrade to Intel 486 & P24-T
- 128K Cache Expandable to 256KB
- 4MB RAM Expandable to 32MB
- 1.2MB and 1.44MB Floppy Disk Drive
- **245MB IDE Hard Disk, MAXTOR**
- IDE 2H/2F Controller
- 2 Serial 1Parallel 1 Game Port
- 101-key enhanced keyboard, MITSUMI
- Mini-tower case w/ 200W power supply
- 14" SVGA Non-interlaced monitor .28 dpi
- **VL-B Graphic Accelerator** w/1MB (Expandable to 2MB) Max 1280x1024 16.7 Million Colors. Driver Support Windows 3.1 AutoCAD R.12 OS/2 V.2.0
- 3 button Hi-Re serial Mouse
- MS Windows 3.1 MS DOS 6.0

Free Software Option

DX2-66	$1695
DX2-50	$1575
DX-33	$1495

Top Performance EISA

- **Nice Main Board Made in USA**
- 256K Cache Expandable to1MB
- 4MB RAM Expandable to 128MB
- 1.2MB and 1.44MB Floppy Disk Drive
- **240MB SCSI Hard Disk, QUANTUM**
- **32 Bit EISA SCSI Controller**
- 2 Serial 1Parallel 1 Game Port
- 101-key enhanced keyboard, KEYTRONIC
- Full-tower case w/ 250W power supply
- **View sonic V6E** Non-interlaced monitor .28 dpi
- Orchid Pro Designer IIs 32bit EISA SVGA/1MB
- **2 button Hi-Re serial Mouse**
- MS Windows 3.1 MS DOS 6.0
- **Free Software Option**

DX2-66	$2495	DX2-50	$2345
DX-50	$2395	DX-33	$2295

Excellent Windows Solution
EISA VESA Local Bus

- **Nice Main Board Made in USA**
- **ZIF Socket for Upg. to any Intel 486& P24-T**
- 256K Cache Expandable to 1MB
- 4MB RAM Expandable to 128MB
- 1.2MB and 1.44 MB Floppy Disk Drive
- **240 MB SCSI Hard Disk,QUANTUM**
- **32 BIT EISA SCSI Controller**
- 2 Serial 1 Parallel 1 Game Port
- 101-key Enhanced Keyboard,KEYTRONIC
- Mid Tower Case w/ 230W Power Supply
- **View sonic V6E Non-interlaced monitor, 28 dpi**
- **ET-4000/W32 VL-B Graphic Accelerator w/1MB** Max 1280 x1024 16.7 million colors Drivers Support Windows 3.1 Auto CAD R.12,OS/2V 2.0
- **2 button Hi-Re serial Mouse**
- MS Windows 3.1 MS DOS 6.0
- **Free Software Option**

DX2-66	$2345	DX2-50	$2195
DX-50	$2245	DX-33	$2145

486-ISA
(Windows Accelerator)

- 64K Cache Expandable to 256KB
- 4MB RAM Expandable to 32MB
- 1.2MB and 1.44MB Floppy Disk Drive
- **170MB IDE Hard Disk, QUANTUM**
- 1:1 Interleave 2 FL/2HD Disk Controller
- 2 Serial 1 Parallel 1 Game Port
- 101-key enhanced keyboard, MITSUMI
- Mini-Tower Case w/ 200W Power supply
- 14" SVGA Non-Interlaced Monitor .28 dpi
- **Windows Accelerator Card w/ 1MB**
- **2 button Hi-Re serial Mouse**
- MS Windows 3.1 MS DOS 6.0
- **Free Software Option**

DX2-66	$1595	DX-33	$1395
DX-50	$1495	SX-33	$1295
DX2-50	$1455	SX-25	$1245

386 ISA BUS

- 4MB RAM Expandable to 32MB
- 1.44MB Floppy Disk Drive
- **80MB Hard Disk, MAXTOR**
- 1:1 Interleave 2 FL/2HD Disk Controller
- 2 Serial, 1 Parallel, 1 Game Port
- 101-key Enhanced Keyboard, MITSUMI
- Mini-Tower case w/ 200W Power supply
- 14" SVGA monitor .39 DPI
- 16 bit SVGA card w/ 1MB
- **2 button Hi-Re serial Mouse**
- MS Windows 3.1 MS DOS 6.0

386SX-33 MHz (Non-Cache)	$955
386DX-33 MHz w/64K Cache	$995
386DX-40 MHz w/64K Cache	$995

Free On-Site Service (Bay Area only)

Sales Hours: 7:30AM - 6:30PM Weekdays, 10AM - 6PM Saturdays (Pacific Time)

Sunnyvale Tel: (408) 720-0493
1196 Kern Ave., Sunnyvale, CA 94086

El Cerrito Tel: (510) 528-0753
10005 San Pablo Ave., El Cerrito, CA 94530

Sacramento Tel: (916) 483-4278
2530 Watt Ave., Sacramento, CA 95821

Terms and conditions for HD Systems only: • 30 days money back guarantee, no restocking fee • 1 Year parts life time tech support warranty • Toll-free technical support • Major credit cards accepted • No surcharge for VISA, MC,AE and Discovery cards • Quality PO's accepted from Academic, Corporate and Public Institutions • APO's welcome • Shipping charge not refundable • Return shipping must be insured, prepaid and bearing an RMA# on the shipping label • Price does not include shipping • Price and configurations are subject to change without notice • 14 process days for purchase refund

HD COMPUTER

UNBEATABLE MULTIMEDIA PACKAGE

Affordable Package for your Family

Panasonic 522(INT) AT BUS
- Sound Blaster PRO
- M.S Window 3.1
- M.S bookshelf MPC
- M.S works
- Kings quest
- Mother goose
- Sound library

$469

Affordable Package for your Family

MITSUMI MPC CD ROM
(INT)AT BUS 350MS 150 KB/SEC
Photo CD Compatible
- 16 Bit CD quality sound card
- Toolworks encyclopedia
- US ATLAS
- CARMEN SAN DIEGO
- Sound library

$489

High Performance Package for Your Business

TEXEL
DM-3024 (INT)SCSI
265MS MULTI-SPIN CADDY
- American business phone book
- Lotus 1-2-3 V3.1
- Marketing master 1992
- M.S bookshelf MPC

$529

High Performance Package for Your Business

TOSHIBA FASTEST SCSI CD ROM
XM-3401B (INT) SCSI
200MS 330KB/SEC MULTI-SPIN CADDY
- American business phone book
- Lotus 1-2-3 V3.1
- Marketing master 1992
- M.S bookshelf MPC

$619

Top Performance Package for Windows NT Users

TOSHIBA
XM-3401B (INT)SCSI CD ROM
- PRO Audio Spectrum 16
- Compton's MPC encyclopedia
- M.S. bookshelf MPC
- M.S. works MPC
- CD came pack II

$799

MEDIA VISION

CDR-84 (INT)SCSI 280MS
- PRO Audio spectrum 16
- CARMEN SAN DIEGO
- Compton's MPC encyclopedia
- LOTUS 1-2-3
- Kings Quest
- Macro MInd
- Nautilus

$849

UNBEATABLE CD-ROM TITLES PRICE

Business		
BUS001	American Business Phone Book	$31.99
BUS002	Business and Economic Atlas	$39.99
BUS003	Guinness Disk of Records, MPC	$31.99
BUS004	Jets and Props	$31.99
BUS005	Lotus 123 V3.1	$151.99
BUS006	Marketing Master 1992	$39.99
BUS007	Media Clips - 4 pack	$79.99
BUS008	Microsoft Works MPC	$79.99
BUS009	Ocean Digital Imagery Vol. 1	$39.99
BUS010	Publish It 2.0 DOS	$39.99
Educational		
EDU001	Animals V1.0 Software Toolworks	$39.99
EDU002	Britannica Family Choice	$39.99
EDU003	Desert Storm MPC	$31.99
EDU004	Dictionary of Living World	$31.95
EDU005	Family Education Collection	$39.99
EDU006	Mixed-up Mother Goose MPC, DOS	$31.99
EDU007	PC Graphic & Sound Demo	$23.99
EDU008	Playing w/ Language - English	$47.99
EDU009	Playing w/ Language - French	$47.99
EDU010	Playing w/ Language - German	$47.99
EDU011	Playing w/ Language - Japanese	$47.99
EDU012	Playing w/ Language - Spanish	$47.99
EDU013	Presidents	$151.99
EDU014	Shakespeare	$39.99
EDU015	Time Table of History	$31.99
EDU016	US History	$47.99
EDU017	USA Wars: Civil War	$55.99
EDU018	USA Wars: Korea	$55.99
EDU019	USA Wars: Vietnam (DOS)	$55.99
EDU020	USA Wars: World War II	$55.99
EDU021	Whale of Tale	$89.99
Reference		
REF001	Auther's Teacher Trouble	$39.99
REF002	Comptons MPC Encyclopedia	$151.99
REF003	Family Doctor	$39.99
REF004	Holy Bible	$31.99
REF005	MacMillans Children Dictionary	$47.99
REF006	Mayo Clinic Family Heath Book	$39.99
REF007	Reference Library	$39.99
REF008	Toolworks Encyclopedia	$79.99
REF009	Vital Signs MPC	$111.99
REF010	PC-SIG 10th Edition	$23.99
REF011	PC-SIG 11th Edition	$23.99
REF012	Mavis Teaches Typing MPC	$39.99

Entertainment		
ENT001	Amanda Stories	$55.99
ENT002	Adventure of Willy Beamish	
ENT003	Annable's Dreams Egypt	$79.99
ENT004	Annable's Dreams MPC	$79.99
ENT005	A Survey of Western Art MPC	$39.99
ENT006	Authorware Star for Windows	$59.99
ENT007	Battle Chess Enhanced	$39.99
ENT008	Beauty and Beast	$29.99
ENT009	Carmen San Diego	$39.99
ENT010	CD Game Pack II	$39.99
ENT011	CD Story time DOS	$31.99
ENT012	Chess Master 3000 MPC	$31.99
ENT013	CIA World Fact Book	$31.99
ENT014	Composer Quest MPC	$83.99
ENT015	Dinosaur Adventure	$39.99
ENT016	Jones in Fast Lane MPC	$31.99
ENT 017	King's Quest V	$39.99
ENT018	Library of Futured 1st	$63.99
ENT019	LOCM from Lucas MPC	$39.99
ENT020	Macromedia Action for Windows	$49.99
ENT021	Microsoft Bookshelf	$79.99
ENT022	MIDI Music Shop	$31.99
ENT023	Money Island	$39.99
ENT024	Peter and the Wolf	$31.99
ENT025	Renaissance Masters I MPC	$39.99
ENT026	Renaissance Masters II MPC	$39.99
ENT027	Secret Weapons of LuftWaffa	$39.99
ENT028	Sherlock Holmes	$39.99
ENT029	So Much Shareware I	$31.99
ENT030	So Much Shareware II	$31.99
ENT031	Sound Library	$39.99
ENT032	Space Adventure	
ENT033	Space Quest IV: Roger Wilco	$31.99
ENT034	Sport's Best	$24.99
ENT035	Stellar 7 DOS	$31.99
ENT036	Tempra Access Photo CD	$29.99
ENT037	Time Almanac 1991	$31.99
ENT038	Total Baseball	$55.99
ENT039	Wild Places	$39.99
ENT040	Wing Command & Ultima VI DOS	$39.99
ENT 041	Winzard MPC	$31.99
Travel		
TRV001	Great Cities - Vol 1	$29.95
TRV002	Great Cities - Vol 2	$29.95
TRV003	National Geographic Mammals	$39.99
TRV004	US Atlas/World Atlas	$31.99
TRV005	US Atlas & Auto Map	$47.99
TRV006	World Atlas MPC	$39.99
TRV007	World View	$39.99

AND MUCH MORE...

NINTENDO-MARIO GAME PAK

Includes:
- Mario is missing game on 5.2 floppy diskettes.
- Sheilded mini stereo speakers.
- Ad Lib compatible sound boar.
- Coupon for 10 city upgrade disk.
- Installation guide.

$69

When purchase any brand CD ROM, You can get 10% off from above CD ROM Titles !!

Terms and conditions for Parts only:

• 30 days money back guarantee • 1 Year parts warranty • major credit cards accepted • No surcharge for VISA, MC, AE, and Discovery cards • Quality PO's accepted from Academic., Corporate and Public Institutions • APO's welcome • Shipping charge not refundable • Return shipping must be insured, prepaid and bearing an RMA# on the shipping label • Price does not include shipping • Price are subject to change without notice • Components warranties offers and claims are handled by the manufactur • Components Compatibility is not Guaranteed • No returns on used items • All opend retures are subject to 15% restocking fee • No Exchanges or Refunds on CD Ti Damaged CD's will be replaced with the same title only... • 14 process days for purchase refund.

Sales Hours: 7:30AM - 6:30PM Weekdays, 10AM - 6PM Saturdays (Pacific Time)

Sunnyvale Tel: (408)720-0493
Fax : (408)720-1967

El Cerrito Tel : (510)528-0753
Fax : (510)528-0757

Sacramento Tel : (916)483-42
Fax : (916)483-4826

HD
COMPUTER
UNBEATABLE PRICE !! UNBEATABLE PRICE !!

Motherboard

AMI	
Enterprise III EISA/VL-B 486DX2-66/256K/CPU	$1450
Enterprise III EISA/VL-B 486DX-50/256K/CPU	$1300
Enterprise III EISA/VL-B 486DX-33/256K/CPU	$1150
Super Voyager 486DX2-66/VL-B/256K/CPU	$1200
Super Voyager 486DX2-50/VL-B/256K/CPU	$1100
Super Voyager 486DX33/VL-B/256K/CPU	$995
MICRONICS	
486DX-33/256K/CPU ISA	$690
486DX-50/256K/CPU ISA	$990
486DX2-66/256K/CPU ISA	Call
NX-30 486DX-33/256K/CPU VL-B	$850
NX-30 486DX2-50/256K/CPU VL-B	$950
NX-30 486DX2-66/256K/CPU VL-B	$1190
E-3 486DX2-66/256K/CPU EISA	$1450
NICE (Made in U.S.A)	
ZIF 486DX/256K VL-B	$240
ZIF EISA VESA VL-B 486DX/256K	$300
Super EISA VESA VL-B 486DX/256K	$450
EISA 486DX/256K/8 EISA slots	$400
ORCHID	
486DX33/DX2 50/DX2 66/256K VL-B	$350
ASUS	
ZIF 486DX/SX/256K VL-B	$240
ZIF 486DX/SX/128K VL-B	$210
EISA 486DX /256K/3 EISA slots	$300
EISA 486DX /256K/8 EISA slots	$350
486DX2-66/256K/CPU ISA	$690
486DX-33/128K/CPU	$450
386DX-40/64K/CPU	$190

Controller

ADAPTEC	
1542C ISA SCSI w/ kit	$255
1742A EISA SCSI w/ kit	$455
AMI	
EISA SCSI Cache	$515
ASUS	
32-bit EISA SCSI Cache	$350
DTC	
2290 EISA IDE	$135
ORCHID	
VL-B IDE 2FL/2HD	$79
PROMISE	
DC 99MN IDE Cache/512K (Up to 8MB)	$145
DC 200M IDE Cache/512K (Up to 8MB)	$179
DC 2032 IDE I/O Cache up to 16MB	$169
DC 4030VL VL-B IDE Cache up to 16MB	$219
ULTRASTOR	
ULT 34F VL-B SCSI II 32K Cache	$350
ULT 24F EISA SCSI 64K Cache	$395
ULT 14F ISA SCSI 32K Cache	$225
WINBOND	
2FL/2HD IDE I/O	$25
IDE Cable	$5

Memory Simms

1MB X 3-70	$38.5
1MB X 9-70	$41.5
4MB X 9-70	$150
4MB X 9-60	$170
1MB X9-60	$44.5

COLORADO Tape Back-Up

DJ-10 120MB/2BM Compatible	$145
DJ-20 250MB/2BM Compatible	$199
ARCHIVE Tape Back-up 9250i 250MB w/Tape	$195

Hard Drives

Quantum ELS127A 127MB 17MS	$195
Quantum ELS170A 170 MB 17MS	$225
Quantum LPS 240A 240MB IDE	$305
Quantum LPS 240S 240MB SCSI	$305
Conner CP 30104H 120MB 19MS	$185
Conner CP30174E 170MB 17MS	$225
Conner CP30254E 250MB 14MS	$305
Fujitsu M2624 520MB IDE 14MS	$785
Fujitsu M2624 520MB SCSI 11MS	$785
Western Digital AC2250 250MB IDE	$285
Western Digital AC2340 340MB IDE	$385

Maxtor 7080A 80MB 17MS	$170
Maxtor 7120A 130MB 15MS	$185
Maxtor 7213A 210MB 15MS	$275
Maxtor 7213S 210MB SCSI 15MS	$335
Maxtor 7245A 245MB 15MS	$285
Maxtor 7345A 345MB 14MS	$385
Maxtor LXT-340S 340MB SCSI	$565

Floppy Drives

TEAC 5.25" 1.2MB	$58
TEAC 3.5" 1.44MB	$53
TEAC Dual 1.2 and 1.44	$138
Epson 5.25" 1.2MB	$53
Epson 3.5" 1.44MB	$48
2.88MB Floppy Drive	$88

Video Adaptors

AMI Fast View with 2MB Weitek P9000	call
AMI Fast View EISA VGA Graphic with 1MB	$295
ATI Graphic Ultra Plus/1MB and Mouse	$375
ATI Graphic Ultra Pro/2MB VRAM	$525
ATI Graphic Ultra Pro VL-B/2MB VRAM	$440
ATI Graphic Ultra Pro EISA/ 2MB VRAM	$450
Diamond Speed Star 24X/1MB Hi-Color	$175
Diamond Stealth 24/1MB	$185
Diamond Stealth 24 VL-B/1MB	$210
Diamond Stealth Pro VL-B/2MB	$395
Diamond Viper VL-B/2MB	$475
Orchid Fahrenheit 1280/1MB	$165
Orchid Fahrenheit 24-bit /1MB	$175
Orchid Pro Designer IIs/1MB	$135
Orchid Pro Designer IIs EISA/1MB	$175
Orchid Fahrenheit VL-B/1MB	$210
Orchid P9000/3MB	$475
Cirrus Logic VL-B Graphic Accelerator/1MB	$135
Cirrus Logic VI-B Graphic Accelerator/2MB	$165
ET-4000/w32 Graphic Accelerator/1MB	$175
Windows Accelerator Card/1MB	$85
16-bit SVGA Card/1MB	$80
16-bit SVGA card/512K	$65
16-bit SVGA card/256K	$50

Modems

Zoltrix 2400 Modem	$45
Zoltrix 9600/2400 Fax Modem	$75
Zoltrix 9600/2400 Fax Modem for Windows	$95
Zoltrix 14400/14400 Fax Modem	$195
Zoltrix 14400/14400 Fax Modem for Windows	$215
Intel Satisfaction 200 96/24 Fax Modem	$315
Intel Satisfaction 400 96/24 Fax modem	$415

Mouse

3 button Hi-Res serial mouse	$19
Cordless super mouse w/Window	$60

CD-ROM

MITSUMI (INT) W/16bit card MPC/ 350MS	$195
TOSHIBA XM-3401B/SCSI	(INT) $465
	(EXT) $575
SONY 31A/controller card	$215
SONY 541 SCSI	(INT) $385
TEXEL/SCSI MD-3024/265MS w/caddy	(INT) $355
MD-5024	(EXT) $445
NEC/280MS CDR-84	(INT) $495
PANASONIC 522 AT BUS	(INT) $215
EXTERNAL SCSI cable	$15

Sound Card

SOUND BLASTER PRO	$169
SOUND BLASTER 16 ASP	$265
PRO Audio Spectrum 16	$169
SOUND BLASTER compatible/ microphone, speaker	$89

Monitors

14" VGA Mono Monitor	$120
14" VGA Monitor .39 dpi (1024x768)	$225
14' SVGA Monitor .28 dpi (1024x768)	$275
14" SVGA non-interlaced monitor .28 (1024x768)	$295
MAG	
MX145 14" 1280x1024 .26 NI	$525
MX15F 15" Flat 1280x1024 .28 NI	$595
MX17F 17" Flat 1280x1024 .28 NI	call
VIEWSONIC	
Viewsonic 5+14" 1024x768,25 NI	$514
Viewsonic 5E 14" 1024x768.28 NI	$415
Viewsonic 6E 14" 1024x768.28 NI	$335
Viewsonic 6FS 15" 1024x768 NI	$595
Viewsonic 15 15" 1280x1024.28 NI	$685
Viewsonic 7 17" 1280x1024.28 NI	call
Viewsonic 17 17" 1600x1280.28NI	call
Viewsonic 8 20" 1280x1024.31 NI	call
Viewsonic 20 20" 1600x1280.28 NI	call
Viewsonic 21 21" 1600x1280.28NI	call
SONY	
1430S 14" 1024x768.25 NI	$645
1604S 17" 1024x768.25 NI	call
2036S 20" 1280x1024.30 NI	call
NEC	
3 FGE 15" 1024x768.28	call
4FGE 15" Flat 1024x768.28 NI	call
5FG 17" Flat 1280x1024.28 NI	call
6FG 21"Flat 1280x1024.28	call
NANAO	
F550i 17" 1280x1024.28 NI	call
F660i 20" 1280x1024 .31 NI	call
F750i 21" 1280x1024.31 NI	call

Keyboards

(On - screen reprogramming)

Programmable Keyboards	$99
Programmable Keyboards black	$109
Focus 9000 129 Keys Programmable	$70
Omni Ultra	$95
Omni 102	$79
Omni 101	$79
Keytronic 101	$39
OKI 101	$35
Maxi 101	$35

Sales Hours: 7:30AM - 6:30PM Weekdays, 10AM - 6PM Saturdays (Pacific Time)

Sunnyvale Tel: (408) 720-0493
1196 Kern Ave., Sunnyvale, CA 94086

El Cerrito Tel: (510) 528-0753
10005 San Pablo Ave., El Cerrito, CA 94530

Sacramento Tel: (916) 483-4278
2530 Watt Ave., Sacramento, CA 95821

continued from page 106

Forms and reports can be interchanged, so a well-designed screen form can become the basis for a printed report. You can build "What you see is what you get" invoices by copying a screen form into a report design.

properties are accessible with a click of the right mouse button.

Other—often unexpected—objects can be included. Database tables can become member-objects in forms. You can simply include a table in a form and use the form to allow editing of the table's values. This is one way to build a quick and dirty data-entry system. Another is to use the "Quick Form" option. All the fields of the database appear in order on the quick form. You can use the form as is, or move things around and then save the customized version.

Instant access to all the properties of everything simplifies and speeds the design of screen forms. Forms and reports can be interchanged, so a well-designed screen form can become the basis for a printed report. You can build "What you see is what you get" invoices by copying a screen form into a report design.

The design-test-redesign cycle is simplified. On the design icon-bar there is a "run" button that will make the form run as it will appear to the user. And on the "run" icon-bar there is a design icon that allows you to return to design mode to make changes.

When you have perfected your form, you can create a "delivery" version of it. The "delivery" version works just like the run version you have been using to test your design, but the design tool is not available and the user cannot modify the form.

POWERFUL SCRIPTING LANGUAGE? YES. EASY? WELL...

While the friendliness of Paradox for Windows to different database types can make for smooth adoption on one front, the in-house code-maintainers will be whimpering. The PAL code they developed over the years for DOS versions of Paradox will not run in Paradox for Windows, nor will dBASE code. Although there will be chunks of transferable code, most applications will have to be completely rewritten.

Not only rewritten, but re-thought. Paradox for Windows is completely object-oriented.

Object orientation means that the program is no longer considered as one monarchy, with a single ruler and homogeneous communications among the various parts. Instead, an object-oriented program is set up as a federation (on a good day) or a United Nations (on a bad day) of semi-independent objects that communicate among themselves by messages.

The good news is that Borland has provided extremely intelligent objects, and very easy access to them. When you click on a screen object, one of the menu choices is "methods." "Methods" are object-jargon for procedures that will run in response to various messages. And for everything you want to do in Paradox for Windows there is some object that knows how to do it. The question is, which one?

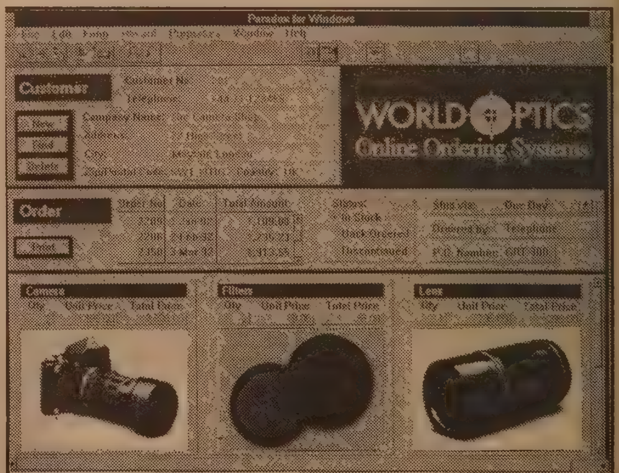
Every programming operation in an object-oriented program (OOP) must begin with one question: "Which of the many objects will handle this?" Does the table print itself? Does the form in which it is embedded handle printing? Does Paradox for Windows do it? How can one object—perhaps a button—get another object like a field to change its value? How does an object decide if another object is entitled to give it messages? If this sounds to you like bureaucracy, you're right. A bureaucracy-like confusion about "who's responsible" is the plague of OOPS.

The value of OOPS is mostly for developers—people who must reuse designs many times. They can build a general solution into an object, and reemploy it in dozens of different contexts. The grief of objects is concentrated at the beginning of the learning process. By adopting an object-oriented approach, Borland has made Paradox for Windows less approachable for the occasional or small user than its predecessor in the DOS world.

Paradox for DOS was famous for its gentle curve between non-programming and programming. In a DOS Paradox project, when you discovered that you were doing something frequently, you could use the built-in macro recorder to record the process into a macro. Macros could be glued together to make super-macros, or included in a DOS-Paradox PAL script when you began to write them.

Paradox for Windows has no macros. Any activity you wish to automate must be done in ObjectPAL. There is a considerable chasm between the easy and elegant interface design and the arcane workings of ObjectPAL. The non-programmer in Paradox for Windows, unlike the non-programmer who uses Paradox for DOS, will not move by almost imperceptible steps into programming. It will be a major jump.

The result is that while simple Paradox for Windows applications can be designed by any savvy computer user, midlevel and advanced Paradox for Windows applications will probably require a professional. dBASE and its superset/clones have always required significant programming, but Paradox used to hold unique possibilities for the small business where the user had to learn to be the maintainer. I have twice taught the staffs of small offices to operate their own DOS Paradox applications, and to extend them. In choosing this design strategy, Borland may have inadvertently surrendered the mid-range.



Best Selection and Prices on Vesa Local Bus

OverDrive P24T Socket Ready 238 Pin ZIF Socket	**AIR EISA 486DX2-66 W/ 256K Cache**	**1200**
OverDrive P24T Socket Ready 238 Pin ZIF Socket	**AIR EISA 486DX-50 W/ 256K Cache**	**1100**
Made in USA, 2 Vesa Local Bus Slot Basic	**ORCHID VLB 486DX2-66 256K Cache**	**990**
Made in USA, 2 Vesa Local Bus Slot Basic	**ORCHID VLB 486DX-33 256K Cache**	**750**
Made in USA, 3 Vesa Local Bus Slot Basic	**AIR VLB 486DX2-66 W/ 256K Cache**	**970**
Made in USA, 3 Vesa Local Bus Slot Basic	**AIR VLB 486DX-50 W/ 256K Cache**	**880**
Made in USA, 3VL Local Bus Slot Basic	**AIR VLB 486DX-33 W/ 256K Cache**	**720**
Firm in USA, 2 Vesa Local Bus Slot Basic	**BAY 486DX2-66 W/64K Cache**	**870**
Firm in USA, 2 Vesa Local Bus Slot Basic	**BAY 486DX-33 W/64K Cache**	**620**
Landmark 64 MHz, Basic System with 1 MB	**BAY 386DX-40 W/128K Cache**	**340**
Landmark 53 MHz, Basic System with 1 MB	**BAY 386DX-33 W/128K Cache**	**320**
Landmark 33 Mhz, Basic system w/ 1MB	**BAY 386SX-25**	**280**

BASIC SYSTEM INCLUDE

MotherBoard & CPU
1MB of Memory • 1.2MB or 1.44MB Floppy Drive
Multi I/O 2s/1p/1g • Desktop or Mini Tower + P.S.
1:1 2HD / 2FD Controller • 101 Enhanced KeyBoard

* We are authorized Dealer of AIR, Orchid Technology, DASH Computer.

HARD DISKS (CONNER, MAXTOR, QUANTUM)	
40 MB IDE (28ms)	$145
100MB IDE (18ms)	$185
130 MB IDE (15ms)	$205
213 MB IDE (15ms)	$265
245 MB IDE (15ms)	$295
240 MB IDE Quantum w/256k cache	$305
340 MB IDE (13ms)	$380
520 MB IDE (12ms)	$780

UNIX-XENIX-NOVELL NETWARE	
Novell Netware 4.0 5/10 Users	$890/2090
Novell Netware 4.0 25/50 Users	$2995/3995
SCO Unix/ Xenix OS (1-2 User)	$390
SCO Unix/Xenix OS (3 + User)	$890/$620
SCO Unix/xenix Development	$890

VESA LOCAL BUS PERIPHERALS/ VLB	
AIR SCSI Local Bus SCSI-2 (Bus Master)	$280.00
Orchid IDE VLB + MULTI I/O	$ 75.00
AIR IDE VLB + MULTI I/O for 486dx-50	$ 95.00
MICRONICS 486 VLB w/256 33/66 + CPU	$890/1170
ORCHID 486 VLB w/256K 33/50 MHz	$240/250
AIR 486 VLB ISA w/256K 33/50Mhz	$230/250
AIR 486 VLB EISA w/256K 33/50Mhz	$460/490
Dash 486 VLB ISA w/64K 33/50Mhz	$150/180
ATI Ultra Pro VLB w/ 2 MB VRAM	$410.00
Diamond Stealth-24 VLB S3 SVGA 1MB	$170.00
Orchid Farenheit VLB 1MB-2MB	$170.00
AIR Star 2000 Weitek P9000 Fastest	$420.00
ORCHID Weitek P9000 VLB 3MB (Fast)	$410.00
Diamond Viper VRAM VLB 2MB	$410.00

MONITORS	
SuperVGA (1024x768,0.39mm)	$230
SuperVGA (1024x768,0.28mm) Arche	$260
SuperVGA (1024X768, Non-int) Arche	$295
NEC 3FGe 15" Flat Screen	$620
NEC 4FG 15" Flat Screen	$720
NEC 5FGe 17" Flat Screen	$1090
Viewsonic 6E/ 7 (17 Inches)	$340/995
Nanao F550I 17" PC Mag Editor Choice	$1050

PRINTERS	
Panasonic KX-2180	$160
Panasonic KX-2123	$240
Deskjet 500/500C/550C	$385/475/689
HP IIP+/IIIP/IV	$785/875/1349

MISCELLANEOUS	
Toshiba internal XM-3401B (fast)	$460
AIR SCSI Local Bus Controller VLB	$280
Microsoft Mouse Serial	$63
SCSI Adaptec 1522 HD/FD	$110
SCSI Adaptec 1542C + EZ Software kit	$265
9600B/2400B FAX/ Modem	$60
14.4 K Modem/FAX v3.2,v,42bis MNP5	$170
Network NE2000 (Coaxial/10BaseT)	$85/95
Network SMC Etherlink II	$165
Media Vision Multimedia Kit + SCSI CDROM	$840
Pro Audio Spectrum 16 SCSI interface	$148
Tape Back-Up Drive 120/250	$145/240
Sound Blaster Pro 16 ASP	$230

ORCHID + AIR VLB COMPLETED SYSTEMS

ORCHID VLB 486-33 W/ 256K CACHE MED-TOWER SYSTEM	ORCHID VLB 486-50 W/ 256K CACHE MED-TOWER SYSTEM	ORCHID 486DX2-66 W/ 256K CACHE MED-TOWER SYSTEM
$1,380	**$1,550**	**$1,600**

1.2 & 1.44 + Mouse + 4MB + Fahrenheit VLB SVGA + Maxtor 213MB + IDE VLB w/ Multi I/O Card

AIR VLB 486-33 W/ 256K CACHE MED-TOWER SYSTEM	AIR VLB 486-50 W/ 256K CACHE MED-TOWER SYSTEM	AIR VLB 486DX2-66 W/ 256K CACHE MED-TOWER SYSTEM
$1,360	**$1,530**	**$1,590**

1.2 & 1.44 + Mouse + 4MB + Fahrenheit VLB SVGA + Maxtor 213MB + IDE VLB w/ Multi I/O Card

BAY VLB 486-33 W/ 64K CACHE MINI-TOWER SYSTEM	BAY VLB 486-50 W/ 64K CACHE MINI-TOWER SYSTEM	BAY VLB 486DX2-66 W/ 64K CACHE MINI-TOWER SYSTEM
$1,070	**$1,220**	**$1,290**

1.2 & 1.44 + Mouse + 4MB + Cirrus Logic VLB SVGA + Maxtor 130MB + IDE VLB w/ Multi I/O Card

BAYCOMPUTER, INC.

VISA

1252 So. Abel Street, • Milpitas, CA 95035
Tel: (408) 956-8014 • Fax: (408) 956-8013
Store Hours: Mon - Fri: 9:30AM - 6:30PM • Sat: 10:00AM - 5:00PM

MasterCard

Design by:AT GRAPHICS (408) 956-9691

WE WILL
MATCH
OR BEAT
ADVERTISED PRICE!

CASE & POWER SUPPLY

MINI TOWER (200W) CASE.	$55
MED TOWER/6 SLOT/LED	85
FULL TOWER CASE/235W	108
AT BABY CASE W/PS	55/65
XT 150W/200W PS	31/36
AT 200W/230W PS	40/45
MaxiSwitch KB 101	35
Adaptec 1542/1522 SCSI H/F/C	115/205
Microsoft Serial Mouse	69
Pen Mouse	29

FLOPPY & HARD DRIVES

Teac 1.2/1.44 FD	$50/43
Maxtor 120 MB IDE	215
Conner 200 MB SCSI	309
Quantum 170 MB IDE	265
Maxtor 130 MB, 16ms	215
Maxtor 7213, 200 MB SCSI	295
Toshiba 3401B SCSI, 200ms CD-ROM	475
CD-ROM Creative Labs 380ms	219
Sound Blaster Pro w/Midi Pkg	159
Sound Blaster Pro Basic	139
Video Blaster	LOWEST
Sound Blaster Pro 16 Bit	LOWEST
Sony CD Pkg 7 Titles	105

PRICE WARS!

CD-ROM SALE

CD-ROM DRIVE
Sound Blaster Pro
& CD programs (5-Titles)
FROM
$395

MOTHERBOARDS

386SX-33/25 w/CPU	$107/99
Orchid 486DX2-66, VLB, 256K w/o CPU	295
Nice USA 486DX2-66, VLB, 256K w/o CPU	245
486DX-50, 128K/256K Cache w/o CPU	128/145
Micronics 486DX2-66, VLB, 256K	$CALL
486DX-33/50, 256K, VESA Local Bus	155/165

CALL FOR CURRENT CPU PRICES

MEMORY UPGRADES

1MBx9-80/70 SIMM	$34
4MBx9-80 SIMM	139
CPU & DRAM	LOWEST
HP LASERJET II, IIP, IID, MEMORY UPGRADES	
1/2/4 MB KITS	80/119/199

MONITORS & VGA CARDS

VESA Local Bus VGA 1 MB	$105
Orchid F1280, 1MB	165
Orchid F1280, VLB	175
MGC 14" Non-Interlace VESA 72Hz 1024x768 0.28mm SVGA	330
ViewSonic 6E/5E SVGA	LOWEST
SVGA 1024x768 MGC .28mm	265
SVGA 1024x768 MGC .39mm	215
VGA 640x480 IBM PSI	199
15" SVGA 1280x1024 .28mm VESA	425
FAX/MODEM CARD	
Tape Back-Up 120 MB	$145
Zoltrix 96/24 Fax Modem	68
Zoltrix 14.4 Fax Modem	179
2400 Baud Int/Ext Modem Hayes	69

BOZEMAN
MARKETING GROUP, INC.
16 CORNING AVE. SUITE 120, MILPITAS, CA 95035
(Inside United Center on S. Main St. & Corning)
Mon-Sat 10AM-6PM
TEL: (408) 263-3158
Fax: (408) 263-6763

When I designed my own application for in-house use, I found ObjectPAL to be slow going at the start, but not impossible. An application that I had wanted to develop for several years got built the first week. The screen design was done in an evening. The ObjectPAL code behind some of the workings took all the rest of the time.

Borland documentation is very good, as usual. Every entry has an example, so you can imitate what they have shown in building your own work. The index is very good, which is fortunate—it is in the index that you find an object that will do what you want. There is also an overview, tutorials for the beginner, a guide for developers—six volumes in all.

Paradox for Windows is remarkably well-behaved for an application of this size and complexity. The only exceptions were occasional refusals to share Windows 3.1 with other applications. *InfoWorld* reported an incompatibility with FastBack. I found that Paradox for Windows would not open properly if MicroLogic's InfoSelect for Windows was running—although InfoSelect could be started after Paradox for Windows.

SHOULD I SWITCH?

If you have complex needs that demand visual interfaces, get Paradox for Windows. An on-screen catalogue that must include pictures is a perfect application.

If you need to interact with other Windows applications through Object Linking and Embedding, get Paradox for Windows. An example would be a real-time data monitor for a large scientific or commercial project.

If you need sophisticated graphics that work in real time, get Paradox for Windows.

If you have no patience for either programming or programmers, Paradox for Windows is not for you. DOS Paradox is still a good bet, but Paradox for Windows will require you, or someone you hire, to master ObjectPAL.

If you're thinking about switching the company to Paradox for Windows, detach one of your people to learn ObjectPAL. Send someone to school. Then judge how much added value you get. Your company will be dependent on the services of a programmer, but you will have considerably more power from your software.

I am keeping DOS versions of Paradox around for use with small companies and individual clients, but I have switched all my own operations to Paradox for Windows. The delectable interface design, the many new data-types, and the potentialities of ObjectPAL convinced me. ■

continued from page 112

is also in the works.

In my own area of expertise, relational databases, IBM is on the verge of releasing DB2/2, and the OS/2 server products from Ingres, Oracle, Gupta, and XDB will probably be upgraded for OS/2 2.1. Lots of applications and utilities (shareware and freeware) are available directly from the developers, on CompuServe, and on a multitude of electronic BBSes. In fact, there is even an OS/2 software store, from which you can order by mail.

Those interested in truly exploiting OS/2 will have to actively seek these sources, be prepared to experiment and live with uneven support, but once they do, it is unlikely that they will ever accept anything less.

SOME CAVEATS

Regardless of what hardware and software you get, you may wind up in the no man's land of the multivendor interface.

Many if not most problems (in any new environment of equal sophistication) are due to interaction between the operating system and one or more hardware components and application programs. Identifying the source is frequently beyond the competence of any one vendor, including IBM. The only effective way to tackle such problems is through a very close technical cooperation between all vendors involved—which, to date, leaves much to be desired.

Thus, if you want to take advantage of the many benefits OS/2 has to offer, be prepared to dedicate time and effort to problem resolution, to persist in coaxing reluctant vendors into cooperation, and to interact intensively with vendors and other OS/2 users on BBSes, CompuServe forums, and so on.

IBM guarantees a refund if OS/2 cannot be made to run properly, but you should also insist on a similar policy from hardware and software vendors, and should thoroughly test everything within the refund period. In general, avoid very cheap no-name clones, and ensure that whoever puts the system together gives good support and, preferably, is local.

Note: I invite vendors and users to contact me with any useful information on hardware and software solutions for OS/2. ■

Fabian Pascal is a Palo Alto independent consultant, teacher and writer specializing in relational database management and SQL, office/portable computing, and OS/2. An industry analyst, he teaches seminars, advises, and has published extensively, including SQL And Relational Basics(M&T Books, 1990), and Understanding Relational Databases, forthcoming from John Wiley. You can reach him on MCI Mail (FPascal), CompuServe (73677,3306), and at 415-325-0646 (voice).

Buy Something Better With Unbeatable 2 Year Parts 5 Year Labor Warranty

intel inside
MICROSOFT WINDOWS COMPATIBLE

1. 2 year parts 5 year labor warranty
2. 30 day money back guarantee
3. All systems VESA compliant
4. All systems with ZIF socket
5. All systems pentium ready
6. All systems with 2 VLB slots
7. All systems with 72 Hrs burn in
8. Knowledgeable sales engineers
9. Unlimited free tech support
10. Free software installation
11. Worldwide satisfied customers
12. 2% discount with cashier check or cash
13. No surcharge for VISA and master card
14. Financing available

Accept Only The Finest Parts

ADI
CTX
TEAC®
Maxtor®
ORCHID
Genoa SYSTEMS CORPORATION
ASUS®
WESTERN DIGITAL

TRUE COLOR

- Pentium ready VLB
- 4 MB 70 ns RAM up to 32MB
- 128 KB Cache
- 212 MB IDE Hard Drive
- TEAC 1.44 & 1.2 MB FLoppy Drives
- Genoa 32 bit True Color VESA Local Bus accelerator with 1 MB
- CTX 14" 1024NI SVGA with .28 DP
- 101 Enhanced Keyboard
- 2 serial, 1 parallel, 1 game ports
- Mini Tower or Desktop case
- High Resolution Mouse

INTEL 486DX-33 ***$1359***

INTEL 486DX-50 ***$1489***

INTEL 486DX2-66 ***$1569***

2% Discount with Cash

GUI STATION

- Pentium ready VLB
- 8 MB 70 ns RAM up to 32MB
- 256 KB Cache
- 255 MB IDE Hard Drive
- TEAC 1.44 & 1.2 MB FLoppy Drives
- 15"ADI Digital Flat NI SVGA with .28
- Genoa 32 bit True Color VESA Local Bus accelerator with 1 MB
- Maxi-Switch/Focus 101 Keyboard
- 2 serial, 1 parallel, 1 game ports
- Mid Tower case with 2 fans
- High Resolution Mouse

INTEL 486DX-33 ***$1699***

INTEL 486DX-50 ***$1829***

INTEL 486DX2-66 ***$1909***

2% Discount with Cash

GUI PRO

- Pentium ready VLB
- 8 MB 70 ns RAM up to 32MB
- 256 KB Cache
- 340 MB IDE Hard Drive
- TEAC 1.44 & 1.2 MB FLoppy Drives
- 15"ADI Digital Flat NI SVGA with .28
- Orchid 32 bit True Color VESA Local Bus accelerator with 1 MB
- Maxi-Switch/Focus 101 Keyboard
- 2 serial, 1 parallel, 1 game ports
- Mid Tower case with 2 fans
- High Resolution Mouse
- 32bit IDE

INTEL 486DX-33 ***$1849***

INTEL 486DX-50 ***$1979***

INTEL 486DX2-66 ***$2059***

2% Discount with Cash

Video

14"CTX 10245VGA .28NI..	$275
15"ADI 4G Digital .28NI ...	$445
17"CTX Digital .28NI	$780
Genoa 8500 VLB...............	$105
Orchid Fahrenheit VLB....	$160
Orchid P9000 VLB...........	$349

MB+CPU

486DX-33-128K VLB....	$420
486DX-50-128K VLB....	$555
486DX2-66-128K VLB..	$650
486DX EISA VLB	$Call
UltraStor 24F EISA SCSI	$380

Hard Drive

Western Digital 212 IDE	$225
Western Digital 255 IDE	$272
Western Digital 340 IDE	$335
Maxtor 212 IDE...........	$250
Maxtor 245 IDE...........	$272
Maxtor 345 IDE...........	$355

MISC

TEAC 1.2/1.44	$42/52
96/24 Fax/Modem	$50
14.4/14.4 Fax/Modem..	$160
Mitsumi CD ROM 350 ms.	$179
Trockball.......................	$10

ENCY Multimedia Package : $369

- Mitsumi Photo CD ROM 350 ms
- Sound Blaster Pro Deluxe Stereo Card & Bundled Softwares
- 3 Best Seller CD Titles:
  1. Software Toolworks MPC Encyclopedia
  2. MIcrosoft Bookshelf
  3. Microsoft Works

MPC™ Multimedia PC
SB SOUND AUDIO BLASTER
CREATIVE

- Come see the demo

*2% discount with cash
* Freight, software, printer & special order items are not refundable.
* One year warranty for disk drives.
* Price and availability are subject to change without notice.
* 15% restocking fee within 30 day, no refund after 30 day
* The Intel Inside Logo is a trademark of Intel Corporation.
* All products referenced herein are trademarks of their respective companies.
* 2 year parts warranty for complete system only

ENCY systems

(510) 226-1848
Fax: 1-510-226-0560
46743 Fremont Blvd., Fremont, CA 94538
Business Hours (PST): Mon-Fri : 8:30 to 5:30 Saturday: 10:00 to 4:00

Classifieds

Accessories

Diskettes

1.44 Formatted .55ea.
1.2 Formatted .36ea.

Ribbons

3M 2120 Data Tape $17.95ea.
Disk Cleaners 3.5" or 5.25" $ 2.00ea.
Parana Printer Ribbons - Epson Approved

Call 1-800-975-3100

Function One

Quality IDEMITSU Rewritable

OPTICAL DISKS

ISO Standard
Proven Performance

3.5" (128 MB)	5.25" (600 MB)
$37	$97

1-800-247-0013
FAX (719) 475-1845

MPS Mail Order Inc.

Display Your PC's Screen on up to 20 Monitors

Model 400 Video Splitter

Extension cables to 250 ft. available

Made in USA

Works with VGA, SVGA and RGBS monitors.

Starting at $275

H & R TECHNOLOGY

SANTA ANA, CA (800) 959-6439

Accessories

Multimedia, LANs, Memories Mother Boards, Mouses, Laser Toners, Drums, Ribbons, Printer Sharing Devices. (408) 452-0241, C.A.P.

POWERVISION

New revolutionary on-line buying & information service. Ground floor opportunity MLM. Income for Life. A no risk money making Opportunity. Call for details. (415) 388-8893

Accessories

Direct from Manufacturers, High Quality, Low Prices, Computer Accessories. Free catalog! (408) 997-7811 or fax (408) 997-8718.

Bulletin Boards

We have the Bay Area covered!

- 30,000 files, 5.2 Gigabytes
- PC-SIG Library on CD ROM
- Huge Adult Conference
- Local Numbers for many bay cities.

415-598-0398 San Carlos
415-992-3780 San Francisco
510-254-5455 Orinda
510-862-2200 Sunol
408-247-1717 San Jose

first ONLINE

FREE WINDOWS SOFTWARE, Windows Online (510)736-8343 bbs. Get those hard to find public domain and shareware Windows 3.x files.Call from your home or office, by modem.Assist your company with their Networking of Windows.ATTENTION: Windows Developers, upload your new DEMOS and Sharware for distribution.We provide 50 New Windows & DOS files everyday & currently 10,000+Win3 files-Over 650 message and support Conferences.Read our new magazine called "WinOnLine REVIEW" with its full color graphics and hypertext, all in a Windows HELP file.Includes Windows Tips, shareware and commercial software reviews, New Win3 Product News and much more.All 13 lines are US Robotics Dual Standard modems to 16,800 BPS.,7.0 gigs of storage and Visa/MC accepted on-line for memberships. Call (510) 736-8343 today. Sysop&Publisher, Frank Mahaney.

Bulletin Boards

FIRST ONLINE. Over 30,000 files. 5.2 Gig! PC-SIG Library. Huge adult conference. All lines USR 1200-16,800 baud. REDWOOD CITY: (415)598-0398 SAN FRANCISCO: (415)992-3780 ORINDA: (510)254-5455 SUNOL: (510)862-2200 SAN JOSE: (408)247-1717.

PACIFIC EXCHANGE BBS 408-946-8561. Full Featured BBS with 12 Incoming Data Lines; 50,000 IBM/Window files, 10,000 Adult files, USA-Today online news, Games, Grafittie, Classifieds and more.

Nitelog BBS, DOS, Windows, OS/2 and Adult Files. 17 Nodes (408) 655-1096, 655-8294 v.32bis.

Cartridge Refill

Toner Cartridges + WE WILL NOT BE UNDERSOLD! New Cartridges $69.95 and up (need-exchange). Remanufactured laser-printer and p/copier cartridges $26.95 and up (exchange). We sell L/Pringers and service them. We buy empty cartridges! We specialize in HP3si, IBM 4019, 4029 and HP4 cartridges. L.C.I. (800) 404-2101.

Cartridge Refill

Help the envorinment and save money! 100% guaranteed Toner Cartridges for HP, Canon, NEC, Panasonic, Apple, Brother, IBM, Wong, etc, and printers services. LASER CONCEPTS 1-800-675-9501 or 510-674-1501.

Cartridge Refill

Laser Ace. Toner Cartridge recharge for Laser Printers and Canon PC Copiers, $34-$39. (408) 263-4608.

ORRIS TONER CARTRIDGE REMANUFACTURING COMPANY

We completely disassemble, clean and replace worn or defective parts, replace toner with high quality OEM toner and assign your cartridge with a tracking number.

Ink Jet Cartridges Refilled	\$6.00-\$12.00
Ribbons Re-Inked	\$1.00-\$7.90

1-(800)-484-9896-1055 • Local (408) 779-6940 **100% GUARANTEE**

Toner Cartridges
LaserJet & LaserWriter

$27.50

100%
Guaranteed

PRECISION LASER
(408) 727 - 8338

Quality Remanufactured Cartridges

Ribbon	Laser Toner
Top quality new ribbon replaces old ribbon, as good as new or better	High Quality After market parts make our cartridges better than new & 100% guaranteed

Save $ and help keep cartridges out of Landfill
We Buy Cartridges!

ReNew Printer Cartridge Corp.
(415) 854-2192
1(800) 303-2148

$3 off first Laser Cartridge with ad.

HOW TO PLACE YOUR CLASSIFIED AD IN MICROTIMES:

MINI DISPLAYS: 1 column inch=1 5/16"x7/8" wide. $49 per col/inch, camera ready art, or $49 + $20 for 1X typesetting/production fee.

BUSINESS ADS: Rates are $15 for 15 words or less. 50¢ for each additional word. Your phone number counts as one word.

CATEGORIES: See index to choose the classification that best describes your product or service.

FREE ADS: Private individuals may have one free classified ad of 15 words or less under Hardware, Software, or Accessories only. Mail coupon by the noon deadline for that issue, no phone orders for free ads.

No refunds will be given after copy is received. Credit may be given under certain circumstances

Mail, deliver or fax this coupon along with payment by noon deadline for that issue.

TO RESERVE SPACE
Phone Orders
(510) 934-3700
Fax Orders **(510) 934-7351**
with Visa or MasterCard only.

CLASSIFIEDS CATEGORIES

- ☐ HARDWARE
  - ☐ For Sale
  - ☐ Wanted
- ☐ SOFTWARE
  - ☐ For Sale
  - ☐ Wanted
- ☐ ACCESSORIES
- ☐ BULLETIN BOARDS
- ☐ SERVICES
- ☐ BAR CODES
- ☐ CARTRIDGE REFILL
- ☐ DESKTOP PUBLISHING
- ☐ DISK CONVERSION
- ☐ REPAIRS
- ☐ VOICE MAIL
- ☐ MISCELLANEOUS
  - ☐ Computer Rentals
  - ☐ Office Rentals

CAREER MARKETPLACE CATEGORIES

- ☐ Employment Information
- ☐ Jobs Offered

CONSULTANTS NETWORK CATEGORIES

- ☐ Accounting
- ☐ Business Opportunities
- ☐ Engineering
- ☐ Finance
- ☐ General
- ☐ Hardware
- ☐ LAN
- ☐ Programmers
- ☐ Software
- ☐ Technical Writing
- ☐ Training

____
____
____
____
____
____

Cost of ad ________ **X number of issues to run** ________ **= Amt. enclosed** ________

☐ **Classified** ☐ **Career Marketplace** ☐ **Consultants Network**

☐ Check/MO ☐ Visa ☐ MasterCard Credit Card #________________Exp. Date________

Name ______________________________ Amt.________

Address ______________________________

City ________________State________Zip________

Phone (____)______________________________

SEND TO: MicroTimes Classifieds, 3470 Buskirk Ave., Pleasant Hill, CA 94523

DEADLINE FOR INSERTION IN THE JUNE 28, 1993 ISSUE IS NOON ON FRIDAY, JUNE 11, 1993

The Best Customer Service in the Bay Area !!!

Highest Quality . Fastest Services . Best Prices

@ Lifetime Labor Warranty, Lifetime Technical Support @

OPTImum Performance! Excellent Technical Support!

486 / 386 Complete SYSTEM

MS-DOS 6.0
MICROSOFT MOUSE
MS WINDOWS 3.1
INCLUDED

VESA STD. 486DX2-66MHZ

- 80486DX- CPU w/256K Cache
- 04 MB Ram Inst. Exp. to 32MB
- Built-in Clock & Calendar
- Weitek Co-processor Socket
- Video & Bios Shadowing
- IDE 2HD/2FD Cont.
- Teac 1.2Mb & 1.44Mb
- 213MB IDE 15MS HD
- 2S , 1P , 1 Game Ports
- ORCHID/DIAMOND VLB SVGA
- 14" 0.28dp SVGA MONITOR
- 101 Enhanced Keyboard
- BABY AT CASE W/PS
- 72HRS Burn-In & Testing

Professional Package
ONLY
$ 1,929.00

EISA 486DX

- 80486DX- CPU w/256K Cache
- 04 MB Ram Inst. Exp. to 32MB
- Built-in Clock & Calendar
- Weitek Co-processor Socket
- Video & Bios Shadowing
- IDE 2HD/2FD CONT.
- Teac 1.2Mb & 1.44Mb
- 213Mb IDE 15MS HD
- 2S , 1P , 1 Game Ports
- 16 Bit SVGA Card w/1MB
- 14" . SVGA 0.28DP 1024x768
- 101 Enhanced Keyboard
- Baby AT Case w/230W P.S.
- 72HRS Burn-In & Testing

File Server Package
EISA 33MHZ $ 1,849.00
EISA 50MHZ $ 1,969.00

486DX SYSTEM

- 80486DX- CPU w/64K Cache
- 04 MB Ram Inst. Exp. to 32MB
- Built-in Clock & Calendar
- Weitek Co-processor Socket
- Video & Bios Shadowing
- 1:1 IDE 2HD/2FD Cont.
- Teac 1.2Mb & 1.44Mb
- 213Mb IDE Harddrive
- 2S , 1P , 1 Game Ports
- 16 Bit SVGA Card w/1MB
- 14" SVGA 0.28dp 1024x768
- 101 Enhanced Keyboard
- Baby AT Case w/200W P.S.
- 72HRS Burn-In & Testing

Executive Package
DX- 33MHZ $ 1,495.00
DX- 50MHZ $ 1,645.00
Free 2400B Modem!

386DX SYSTEM

- 80386DX- CPU w/64K Cache
- 04 MB Ram Inst. Exp. to 32MB
- Built-in Clock & Calendar
- Math Co-processor Socket
- Video & Bios Shadowing
- 1:1 IDE 2HD/2FD Cont.
- Teac 1.2Mb & 1.44Mb
- 213MB IDE 15MS HD
- 2S , 1P , 1 Game Ports
- 16 Bit SVGA Card w/IMB
- 14" SVGA Monitor 1024x768
- 101 Enhanced Keyboard
- Baby AT Case w/200W P.S.
- 72HRS Burn-In & Testing

Office Package
DX- 25MHZ $ 1225.00
DX- 33MHZ $ 1235.00
DX- 40MHZ $ 1245.00

FINANCING AVAILABLE ! 30 DAYS MONEY BACK GUARANTEED !

486DX2-66MHZ Power Package

80486DX2 CPU w/256K Cache
04 MB Ram Inst. Exp. to 32MB
Built-In Clock & Calendar
Weitek Co-processor Socket
Video & Bios Shadowing
1:1 IDE 2HD/2FD Cont.
Teac 1.2Mb & 1.44Mb
213Mb IDE Harddrive
2S , 1P , 1 Game Ports
16BIT SVGA W/1MB
14" 0.28DP SVGA MONITOR
101 Enhanced Keyboard
BABY AT CASE W/PS
72HRS Burn-In & Testing

only **$ 1,739.00**
Free Modem 2400B!

NOTEBOOK COMPUTERS

486DX-33/4MB/120MBHD
$$ 2,250.00 $$
486DX-33/4MB/80MBHD
$$ 2,050.00 $$
386SL-25MHZ/64KC/4MB/120MBHD
$$ 1,875.00 $$
386SX-25MHZ/2MB/60MBHD
$$ 1,250.00 $$

Please Call For Details!
All Accessories Available!

Made in the USA ! Complete System!

AMI VLB Super Voyager 486DX-33Mhz 256K Cache,04MB Ram,VLB IDE Cont. Teac 1.2 & 1.44 FD, Maxtor 213MB , Orchid VLB Farenheit, 2S1P1G Ports, 14" SVGA N.I. Monitor,Desktop Case, Northgate Omni Keyboard. **$ 2,155.00**

Micronics 486DX-33Mhz VLB w/ Same Configurations! **$ 2,055.00**

Orchid 486DX-33Mhz VLB w/ Same Configurations! **$ 1,955.00**

On-Site Service Available,Please Call for Details!

Motherboard

MTB386SX33MHZ w/CPU	$ 95
MTB386DX25MHZ	$ 95
MTB386DX33MHZ w/64K Opti	$115
MTB386DX40MHZ w/64K Opti	$117
MTB486DX ISA w/64K Opti	$125
MTB486DX EISA w/256K OPti	$395
MTB486DX VESA w/256K Opti	$175
MTB 486DX ISA,VESA,EISA Opti	$195
Diamond 486DX2 256K,VLB	$375
Orchid 486DX2 256K,VLB	$365

Please Call For Updated Prices!

PRINTERS

STAR 9Pins Dot Matrix	$ 140
STAR 24Pins Dot Matrix	$ 265
STAR 24Pins Color DM	$ 305
HP Lazer IIP PLUS	$ 775
HP Lazer IIIP	$ 995
HP Lazer Series III	$ 1445
HP Lazer IIID	$ 2395
HP Lazer III SI	$ 3495
HP Deskjet 500	$ 395
HP Deskjet 550C	$ 679

Harddisk & Floppy Drives

IDE 42MB	$ 128
IDE 52MB	$ 138
IDE 80MB 18MS	$ 175
IDE 105MB 18MS	$ 195
IDE 120MB 18MS	$ 215
IDE 170MB 15MS	$ 245
IDE 213MB 15MS	$ 315
IDE 240MB 15MS	$ 345
IDE 340MB 15MS	$ 540
IDE 510MB 13MS	$ 790
IDE 540MB 12MS	$ 820
SCSI 1.2GB	$CALL
SCSI 1.7GB	$CALL
FD Teac 1.2MB	$ 54
FD Teac 1.44MB	$ 54

HD/FL Controller

IDE 2HD/2FD Controller	$ 14
IDE 2HD/4FD Controller	$ 34
IDE 2HD/2FD with 2S,1P,1G	$ 23
ADAPTEC 1542B SCSI	$ 260
Utrastore 12F ESDI w/Cache	$ 168
Ultrastore 24F SCSI EISA	$ 457
DTC SCSI Controller	$ 115
AT I/O 2S,1P,1G Ports	$ 15
Serial card or Parallel	$ 10

Monitors

14" IMP SVGA 1024X768 .39	$ 225
14" IMP SVGA 1024X768 .28	$ 265
14" MM SVGA 1024X768 .39	$ 245
14" MM SVGA 1024X768 .28	$ 275
14" CLUB AT 1024X768 .28	$ 340
14" CLUB AT 1024X768 NI .28	$ 380
14" SONY 1304S	$ 550
14" SONY 1604S	$ 990
15" NEC 3FGX	$ 635
17" NEC 4FG	$ 745
17" NEC 5FG	$1338
21" NEC 6FGX	$2760

Video Cards

MGP card	$ 15
Trident SVGA w/512K	$ 35
Trident SVGA w/1MB	$ 55
Tsenglab SVGA w/1MB	$ 79
ATI Utra Pro w/2MB	$395
ATI Ultra Plus w/ 2MB	$295
ATI Ultra w/1MB & mouse	$245
Diamond Speedstar 24X	$147
Diamond Stealth 24	$157
Diamond Stealth VLB	$185
Diamond Viper VLB w/2mb	$480
Orchid Farenheit VLB	$195

Modem

Modem 2400B Internal	$ 34
Modem 9600B v.32/v.42Bis	$ 289
Modem 2400 & Fax 9600 Int.	$ 69
Modem 9600 & Fax 9600 V.32/42	$ 345

Mouse & Keyboards

Logitec 1st Mouse	$ 37
Mouseman Bus	$ 64
Mouseman Serial PS2/Combo	$ 65
Scanman 256	$ 259
Scanman 256 w/OCR Software	$ 299
Microsoft Bus	$ 85
Microsoft Serial	$ 65
BTC 101 Keyboard	$ 20
MNP 101 Keyboard	$ 45
Maxiswitch 101 Keyboard	$ 45

Case & Power Supply

Baby Desktop w/200W PS	$ 55
Baby Tower w/200W PS	$ 65
Medium Tower w/230W PS	$ 95
Full Tower w/230W PS	$ 120
Maxi Tower w/250W PS	$ 325
Super Tower w/275W PS	$ 495

Now 2 locations to serve our valuable customers !

Micro Data Technology,Inc.
115 N.4Th Street , Ste 112 , SanJose , CA 95112
TEL : (408) 971 - 3618 FAX : (408) 971 - 0650

Tower Computer , Inc.
1373 S. Bascom Ave. , San Jose , CA 95128
TEL : (408) 288 - 6937 FAX : (408) 288 - 7120

Prices Reflect Cash or COD Prices,Company,Gov't,Universities PO Accepted!

Price Subject To Change Without Notice ! Not Responsible For Typos
Dealers Inquiries Welcome

BUSINESS HOURS : MONDAY - SATURDAY : 09:30AM TO 07:00PM SUNDAY CLOSED

Classifieds

Cartridge Refill

YOUR #1 SOURCE OF NEW & QUALITY REMANUFACTURED CARTRIDGES. SPECIALIZING IN LASER PRINTER & COPIER CARTRIDGES FOR HP, CANON, APPLE, IBM, EPSON & MANY MORE. 100% GUARANTEED. FREE PICK-UP & DELIVERY. WE SERVICE LASER PRINTERS & COPIERS. TOP DOLLAR PAID FOR YOUR EMPTY CARTRIDGES. UNITED LASER CARTRIDGE SERVICE. 800-633-8527, 510-689-1101.

CD - ROM

Adults CD ROM. All ROM disks are menu driven and BBS ready. Titles available PC-pix volumes I and 2, 600+ mega bytes, $159. Erotic Encounters, worlds largest adult CD ROM $139. Storm volumes I, 2 or 3 $159/each. Ecstacy Hot Picks $179. Cal Ad Software, P.O. Box 50204, Long Beach, CA 90815.

STARDUST SOFTWARE
CD-ROM DRIVES • ALL MAJOR BRANDS
Sony • NEC • Texel • Toshiba • Mitsumi
Largest Selection of CD-Rom Titles
Soundboards
Speakers
Multi-Media
Call Now for our Low Prices & Save
Burbank, CA 800-964-4996

CD - ROM

CD-ROM DRIVES
Toshiba XM-3401B! Double Speed Texel
DM-3024 and DM-5024
SCSI Interface cards Trantor T130
Media Vision Pro 16
Multimedia upgrade kits • Compact Disc Software
Sony CD-ROM Caddies • CD-ROM Accessories
COMPUTERS AT LARGE
Saratoga, CA
Dedicated to CD-ROM Technology
Please Call for Our Price List
800-642-4194 408-255-1081
408-255-2388 Fax
VISA MasterCard

Computer Insurance

SAFEWARE
INSURES YOUR COMPUTERS!
Full replacement of hardware, media, purchased software. From $49 yearly. Covers fire, theft, power surges, other accidents. Blanket coverage; no list of equipment needed. Low $50 deductible. Call for information or immediate coverage.
☎ **1-800-848-3469**
Local (614) 262-0559
SAFEWARE: The Insurance Agency Inc.
2929 N. High Street, PO Box 02211
Columbus, OH 43202

Data Conversion

COMPUTER DISK & TAPE CONVERSIONS
Micros • Minis • Mainframes
Duplications • Backup Retrieval
DATA CONVERSION SERVICES
1-800-327-0330

Hardware

Backup power supply $165, new, 225w. Protects against spikes, surges, blackouts, (20-30min.), and equipment damanging brownouts. (415)456-7000.

Computer Rentals

MacAcademy instructional videos - Pagemaker, Photoshop, Macromind, Free Hand, Excel, Filemaker, Superpaint and more. Sales and rentals (415) 255-9760.

Desktop Publishing

Design graphics - Mac compatible Corel publishing expert. Call Kangarillo Graphic Illustration in Santa Clara at (408) 739-4234.

Hardware

Mac POWERBOOK 100 4/40 (new) $1149, Mac IIFX 4/80 E.K.B. $3099, Mac IICI 5/120 E.K.B (demo.-new) $2599, Mac IICX 5/40 E.K.B. $1999, Mac Quadra 700 4/0 (new) $3899, Mac SE 30 5/40 S.K.B. $1699, Mac SE 4/40 S.K.B. $899, Mac SE 1/20 S.K.B. $749, Mac + CPU $389, Laserwriter IINT $1599, Outbound Notebooks (new) lowest, 52MB ext. HD (new) $299, 40MB HD (new) $259, Mac IISI Nubus Card (new) $149, Apple IIGS Color SYstem (complete) $879, Apple IIe System (complete) $499, Apple IIC/IIC + $249/$349. Other Mac/Apple II's CPU's & Peripherals (new & used). Call for excellent pricing and daily specials. M.P. COMPUTER MICRO SYSTEMS (415)960-1514/FAX (415)968-0509.

Hardware

WHOLESALE PRICES. Tape backup 525 SCSI $685. 1GB $829, 2GB-2.4GB $1155, 2-8GB $1290. Optical drive 1GB $1695. 80MB W/D $195, 120MB $239, 213MB $320, 300 MB Fujitsu IDE 256k 12ms 5yr warranty $635, 520MB Fujitisu IDE 256k Cache 12ms 5 yr warranty $899. CD-ROM w/ card $245. soundcard w/ spkr & microphone soundblaster compatible $99. 5 CDROM titles for $99. We do Repairs, trade for upgrading, Memory Uprgrades, Optical Drives, & MathCO (408)997-8380. For vendors (408)997-6944.

MACINTOSH II 8/40, 20" Dual Page Monitor, modem, Hi-Res (415 dpi) PostScript Laser Printer, S/W, $2750. MacPlus, 1MB/20MB HD, S/W, $350. Hi-Res (415dpi) PostScript Laser Printer for PC, $800. (408) 727-8338.

UNITEK Hard Disk Repair. CONNER, SEAGATE, MAXTOR, PRIAM 40-59 $2.50/MB, 60-79 $2.25/MB, 80-99 $2.00/MB, 100-149 $1.75/MB, 150-199 $1.50/MB, 200-299 $1.25/MB, 300-399 $1.05/MB, 400-599 $.95/MB. Call Now! (408)395-0382.

CLEARANCE SALE. BLOWOUT PRICES!!!!!!! Mac Plus $199; IBM original PC - $79; 1 MB memory card (expandable to 4MB) for HP Laserjet II & III printers - $69. Supermac 8-bit video cards (10pieces - all new) make an offer; 40MB ext. HD for Mac w/ carry case - $229; Mactops 3.1 - $79; IBM OS/2 - 5.25" - $80; M/S DOS 5.0 upgrade - $45; Kanai print sharing box, Procom 1.2 MB ext. FD for PS/2, HP tax font, Compaq LTE battery pack, IBM SDLC adapters, Epson LQ1050 tractor - Please make an offer for any or all equipment. Please call Gigabytes at (510) 440-8032 or fax us at (510) 440-9099. WE ALSO DO REPAIRS AND UPGRADES AT VERY COMPETITIVE PRICES - JUST GIVE US A CALL AND WE WILL GIVE YOU A QUOTE!

Apple/MAC Products at Great Prices! We carry new and used Macintosh and compatible equipment. Please call or fax or for more info or pricing-GIGABYTES (510)440-8032, Fax (510)440-9099. We also do repairs!

DONATE YOUR COMPUTERS to a genuine non-profit organization. We'll put it to work training students in a school or rehabilitation center. Get Tax Benefits and a Good Feeling! (415) 964-4064 the Computer Recycling Center, Inc.

BUY AT DISCOUNT! PowerBook batteries & rapid-charger/conditioners-fully guaranteed; servcice, convenience & low prices., HUDSON BAY 1-800-447-0400.

Hardware

FLEXI ELECTRONICS. Hard drive mbds., tape backup, CD-ROMS, memory, other components. Best rates. Call (408) 226-2791 or (800) 625-2667. 486DX-33 VLB $659. 486DX-50 VLB $1799. 486DX-66 VLB $1849.

SHOW SPECIAL PRICE EVERYDAY. PC Sales, Repair, Upgrade. House Call and Small Business Welcome. (510) 484-5653 Fax (510) 484-5398.

MICRO NETWORK SOLUTIONS. Buy, Sell, Trade, Repair and Upgrade for IBM PC compatible. (415) 979-0788.

486/33 (Intercomp M/B), 4MB RAM, 40 MB HD, NEC 2A Super VGA, $1050; Mediavision PAS-16 soundboard $140; Everex modem $40; Orchid Prodesigner IIs $80; Video Blaster $225. (415) 336-5837.

HP DraftPro Plotter model #7570A C & D size paper 8 pins. Hardly used. $1750/OBO. XT clones w/monitors 3 @$250/each. (510) 215-9771.

Hardware

Hardware

The Clone **ZONE**
NEW & USED
We Buy Surplus !
• Compaq • IBM • HP • Printers • Systems • CD Roms •
Buy • Sell • Trade • Consign
510-935-5203 1555 Third Ave, Walnut Creek

NEW 14.4K FAX/MODEMS at DISCOUNT
UPGRADE to 14,400bps starting from $185 and up. AT&T, Hayes, Practical Peripherals, DigiCom, US Robotics, ZyXEL and others. S/W Included. 16,550 AFNs available. Visa/MC accepted. FREE shipping via UPS.
To order Call: **800-795-4756**

WHOLESALE – LET'S MAKE A DEAL

386SX-33 64K	$710	486DX-33 64K	$815
386DX-33 64K	$739	486DX2-66 256K	$1245
386DX-40 128K	$749	486SX-25 64K/DX-50 256K	$1149

All Systems Include:
Motherboard, CPU, 1.44 or 1.2 floppy drive, mini tower w/power supply, IDE controller + IO (2S, 1P, 1G), Super VGA monitor & card, 101 enhanced keyboard, 1MB memory, 120MB HD.

Notebook 386SX-25	$935	Epson Printer Fx1170 or LQ1070	$389
Maxtor 1.7GB SCSI HD	$1235	Network Card	$59
1GB Toshiba or 1.2GB	$965/$1150	Kodak Diconix 700 (inkjet)	$389
174MB Conner or 340MB IDE	$205/335	250MB w/tape	$189
Scanner w/32 grey & Windows soft.	$119		

We do repair and service.
Call for laserprinters, scanners, memory upgrade, networking, software, CD-ROM, local bus, bar coding.
408 997-8380 Dealer call 408 997-6944
See our ad under Wholesale Prices

COLORADO MEMORY
JUMBO 120MB TAPE DRIVE
$99
PMI (415)952-5398
6 MONTH WARRANTY, REMANUFACTURED

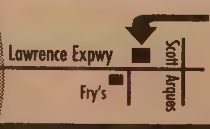
DEALERS' DRIVE SOURCE
Maxtor 1040MB Drives - $895!

NEW DRIVE SPECIALS		REFURBISHED SPECIALS	
Maxtor 1.2GB 8ms SCSI drive	$1395	Maxtor 200MB 15ms SCSI hard drives	$269 ~~$295~~
Fast IBM-compatible SCSI controllers from	$25	Maxtor 640MB 16ms SCSI hard drives	$595 ~~$795~~
Texel 3024 265ms CD-ROM drive	$398	Maxtor 213MB 14ms IDE drive	$249
NEC portable SCSI multi-media CD-ROM	$249 ~~$289~~	Maxtor 800MB Worm Drive	$269

Installation and Service available! Prices valid with this ad only. No other discounts apply.

We Offer Trade-In Credits!

Disk•Drive•Depot
Full selection of hard, optical & tape drives



500 Lawrence Expressway
Sunnyvale
408.738.3895
Open 10-7 Mon-Sat

Classifieds

Hardware

Amiga 500 w/: Monitor, HD, DM Printer, DOS 2.05, Software, more! $850. Call (510) 841-2556.

COPIER: Savon 5020 (Inlarge/Reduce) $550. Panasonic 1200 $400. (510) 438-0808.

Hardware

HP LaserJet III. Excellent, $965. Gary, (408) 365-8681.

286 AT Turbo Seagate Harddisk, 3 1/2" and 5 1/4" drives, Epson printer internal modem $800. Steve (408) 945-9615.

GENUINE TOSHIBA MEMORIES
& ACCESSORIES
Brand New with Original
Manufacture Warranty

Memory Card

768K	T1000	$40
1MB	T1000LE/SE/XE; T2000;2200SX/SXE	$50
2MB	T1000LE/SE/XE T1600;3100SX;3200SX	$65
2MB	T2000;2200SX/SXE; T1200XE;3200SXC; T5100;5200;8500	$75
2MB	T3100	$120
3MB	T3200	$115
4MB	T3100SX;3200SXC	$120
8MB	T5200/C;8500	$270

ACCESSORIES	
Auto Adapter T1000;1100	$11
Auto Adapter T2000SX/SXE	$26
Auto Adapter T3100SX	$8
Batt Pack T1000	$15
Batt Pack T2000SX/SXE	$40
Batt Charger T2000	$65
Batt Charger T1600	$35
Leather Case T3100;5200;3200	$65
Ext Floppy Drive 5.25 P/N PA7225U	$73
Floppy Link P/N PA7367E	$35
Modem for Laptop	CALL

We stock thousands. Call for any other items not listed. Prices are good until quantity last. Dealer inquiries welcome. Call Today

TDSI INC.
95 E. Santa Clara St., San Jose
800-962-2320 (408)287-4410

Hardware

Nintendo for Sale $40, some games also. Call Aaron at (408) 292-1281.

UDP "65 fonts-in-one" cartridge, equivalent to HP Procollection cartridge. Mike (415) 788-4680.

IBM 486/33, 8MB RAM, 80MB HD, 12" color VGA, software. $900. (510) 778-4127.

SCANNER - MAC interface HP PLUS w/ software. Full page flatbed - excellent condition. (510) 262-9101. $650.

CHINA MANUFACTURING. Phone Transformer $0.48. 24V@.2A Power Transformer $0.86. 9V@.3A Wall Adapter $1.48. 16MHz Quartz Crystal $0.33. PCB T73 Relay $0.49. PCB Assembly. INTEGRITY TECHNOLOGY. Tel: (408) 262-8640. FAX: (408) 262-1680.

MAC Classic I 2/40; keybd, mouse, 3.9MB programs, $525. Jim (510) 656-5918.

AST Powerexec 3/25SL pocket modem Math-co Deskjet portable with battery and charger $2000. firm. 278-3305.

Sun 3/50 $350. Docking station for Compac 386 LTE $190. TEKTRONIX PRINTSTATION $900. (707) 765-1356, 762-2624.

HARD DRIVE *and* MULTIMEDIA
SUPER CENTER

Quantum

240MB
LPS240S, SCSI
256K Cache
$319

120MB 2.5"
GO120S, SCSI
For Powerbook
$299

82MB SCSI 85ELS $169

Maxtor

MXT1240S 1.2GB
8ms, 3.5", Fastest Drive
$1297

130MB
7120A, IDE
$188

213MB
7213A, IDE
$268

CONNER

170MB
CP30174 IDE
15ms, *Best Value!!*
$228

540MB
CP3544/CP3540
SCSI or IDE
$749

TOSHIBA

XM-3401B *Fastest SCSI CD ROM Ever*
- 200ms, 330KB/SEC.
- Multi-Spin/Multi-Speed
- SCSI CD-ROM
- 256K Cache

Int. $469 Ext. $579

TEXEL

- SCSI CD
- *FAST* 265ms
- Multi-Spin
- DM-3024

Ext. $445 Int. $359

Multimedia

Buy any 3 Titles...
Get 10% off!

100's of HOT titles available !
- *The 7th Guest* $49.95
- The Mayo Clinic Interactive
- Mixed Up Mother Goose
- Mantis - Flight Simulator
- Pacific Islands
- Global Explorer
- Arthur's Teacher Trouble
- A Whale of a Tale
- The Classic Collection
- Peter Rabbit
- Bruce Lee Lives
- Battle Chess
- Adult Titles

Buy any 5 selected
CD ROM Titles
$79

Apple Macintosh
CALL FOR LATEST BARGAIN PRICES ON THE COMPLETE LINE OF MAC PRODUCTS

MAC BARGAINS
Buy & Sell / New & Used

LCIII / Si	$1269 / $779
IICi / IIFx	$1599 / $1649
PB 160 / 180	$1999 / $3299

SUPERMAC BLOWOUT

Thunder 24	Lowest
DigitalFilm	Below dealer cost
ThunderLight	Priced to move

MEMORY BLOWOUT

MAC 1MB	$29
72 PIN 4MB	$139
72 PIN 8MB	$239
MAC 4MB	$135

Complete your computer accessory needs . . .
- New cordless mouse
- Caddies / Jewel cases
- 80 watt speakers
- SCSI cards
- and more. . .

NHTComputers
3402 El Camino Real
Santa Clara, CA 95051
Tel: 800-443-2377 408-241-8933 Fax: 408-241-8937

Come see us. We're located 1 block south of Lawrence Expressway and CompUSA.
Dealer, Institutional Discounts!

M - F	10 - 9
Sat	11 - 7
Sun	11 - 6

Hardware

486DX-50MHZ local bus, 4MB RAM, 213MB IDE, SVGA, Mouse $1250, call (408) 262-8554.

Amiga Color System with printer $350 or give me a trade. Scott (415) 467-8349.

Hercules Graphic Station +2. Perfect w/AutoCad/Windows w/drivers. $325; (415) 952-6459 after 6pm.

Amiga 500. 1MB color monitor, JSTL wordperf + loads of software $250/OBO. Allen (415) 921-7450.

APPLE WHOLESALE PRICES. Order new Apple with warranty from OMNIBUS and save money over retail (duh), discount (sure), mail order (really?). 510-430-2706. 800-878-2498 (lv. msg). 510-430-2709 (fax).

486/33-120MSHD - tower case-Orchid PRO IIS video-2400-9600 modem fax-soundblaster-DEXXA scanner-Cannon BJ5 printer-$1900 firm. Call Larry at (415) 584-5321.

Dell color notebook, 386, 4MB, 120MB, fax, case, new. $1200/OBO. (510) 778-4127.

Modem Teleport Macintosh 2400 baud, perfect condition $75. (510) 531-3043.

NEC 20" SVGA Multisync color monitor 1024x768 resolution, excellent condition, $790. (408) 473-4785, (510) 490-3211 (eve.).

MAC SE Radius Accel full page display 40 Meg HD $1000 (415) 591-7843.

330 MB 15MS Maxtor SCSI, hard drive with DTC Controller. $400. John (408) 985-3012.

Fujitsu MZ652SA 2.2Gig SCSI I/II 5 yr warranty, fast! 5100 rpm for Mac, etc... $1895. (415) 852-9287.

CHEAP Hi-Quality Output! Panasonic 1180. A bit slow, but great looking output $60. (415) 572-2879.

Complete 286/16 VGA system! 4MB, 42MB HD, 1.2FD, I/O, printer, mono VGA $500/OBO. (408) 225-6338.

Super VGA Monitor. Hi Res. non int. Excellent condition. 1024x768 $225. Sony color monitor $95 firm. (415) 390-4426.

IBM 14" color monitor hi-res PGA, good condition $145. (408) 456-1960.

Western Digital RLL Controller, NEC 66MB Drive, Microscience 89MB drive all for $150. Soundblaster $50. (510) 233-3529 Jim.

Postscript IIP, IIIP, III, IIID $99. HP Memory and Appletalk. IIP toner $45 (new). Lower cassettes IIP, IIIP $145. (408) 224-0520.

Hardware

286-16 30MB HD 1MB RAM, exp to 8MB VGA monitor 1.2MBFD 101KB all in excellent condition. $275 firm. (408) 252-9012.

HP Postscript Cartridge Plus for HP LaserJet series III printers. Adober Postscript level 2! $250/OBO. (415) 584-6045.

EXPRESS Autoloading Disk Duplicator. Includes 5.25" & 3.5". Lightly used. $3,000/offer. (415) 331-4491.

MAC SE Complete System. 2.5MB RAM, 120MB HD, Laserwriter IINT, lots of software, case. $1500. (415) 495-2168 days.

Amiga 2000 HD 40MG HD, 4 floppies, IBM Bridgeboard, etc. $450/OBO. (415) 664-8547.

150M Harddisk $80, w/controller $110 ESDI; 700M SCSI $500. 80M MFM $80, w/controller $100. (415) 621-7027.

Canon LBP - Plus, 1.5 MB printer $799. (408) 224-0520.

ASAP TF-555 fax/modem/phone switch. Paid $135, sell $65. Gary (408) 365-8681.

Cash for APPLE IIe/IIc/IIgs, ImageWriters, Mac's, dead or alive. 1-800-800-0525. Computers for Schools.

Hardware Wanted

I buy used computers and parts. Top money paid. Please call Ernesto (415) 668-2318.

Video color still frame grabber board. S-VHS to 24 bit color. NOT motion video! (209) 463-3403.

Will trade 3 year time share vacation PACKAGE for a used 386 system. Mike (510) 895-6093.

Wanted: Memory Board for NEC powermate 386/20. 2MB APCH655E or 8MB APCH656E. (510) 530-8204.

PLEASE HELP!! The Orchid Database, a nonprofit conservation organization, needs hard drives, portables, and other hardware. Donations are tax deductible. Please call 1-510-235-8815.

Personals

Repairs

PC REPAIR. Inexpensive Repair of IBM PCs or Compatibles. Upgrades of all types. House Calls and Small Businesses Welcome. Guaranteed Lowest Prices. Please Call Ernesto at (415) 668-2318 or (415) 576-5057 (pager).

FACTORY LOW PRICES. SAMS 386-486 Computers & Network Servers. Sales, Repair, Upgrade. Network installer and cabling. Hector Phone/Fax (415)821-0122 Pager 915-0346.

ON-SITE PC REPAIR. No travel charge, in San Jose. HATCH CONCEPTS (408) 226-2625.

The Total Mac. Repairs for Mac systems, LaserWriters and printers. Onsite and while you wait service, free p/u & delivery in SF. 3139A Geary in the Richmond District @386-4320.

PC Repair IBM, PC's or compatible. Upgrade, house calls, free diagnosis. (408) 997-6944.

Bay Tool Electronics Co.
Monitor & Terminal Repair.
All Brands, $65/each, most parts free. 180 day warranty.
BEST IN BAY AREA!
(415) 637-3968
957-R Industrial Road
San Carlos, CA 94070

MACINTOSH & PC
DRIVE
REPAIR
ALL DRIVES
LOW RATES
ALSO BUY DRIVES
DATA
RECOVERY
TECHNOLOGY
(408) 943-9401
700 CHARCOT AVENUE
SAN JOSE, CA 95131

Personals

Sexual Dates Bay Area Men/Women/Gay/Lesbian/Bi-Sex Females. 1-900-844-2121($1.95 per minute).

How About Lunch?
A New Concept In Dating
For Busy Professionals
Are you single looking for a new way to meet quality people? Tired of the bar scene & personal ads?
MEET SOMEONE NEW OVER LUNCH!
We make all the arrangements, matching you with a compatible partner *without* revealing your name or phone number. You just show up!
For more info call:
415-281-5845

Classifieds

Repairs

Repairs

Repairs

California Monitor Services

BIG SCREEN MONITOR REPAIR SPECIALIST
4661-A Lafayette St., Santa Clara, CA 95054
TEL: (408) 986-8327 FAX: (408) 986-8328

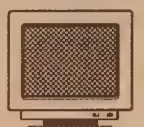
MONITOR REPAIR : ANY NAME • ANY SIZE • ANY MODEL
MONO • COLOR • SUN • PC • MAC • TERMINAL • GRAPHIC
• LASER PRINTER : REPAIR • TUNE-UP
PC Repair & Upgrade: RAM • DRIVE • FAX/MODEM • BOARD
Buy and Sell New and Used Monitors - PC and Parts

Two days turnaround • Free Estimate • Free pick up and delivery
Free Diagnostic • 120 days warranty • Promotional Discount Price

RADIUS SUN MICRO DIGITAL APPLE PANASONIC MOBIUS

MASS MICRO DELL EHMAN

THE EPEI ADVANTAGE IN ...
MONITOR DISPLAY SERVICE



- 10 Plus Years of Dedicated Experience
- Factory Trained and Certified Technician
- IBM, Apple, Workstation, X-Terminal
- All Sizes Color and Monochrome
- 3 Days Turnaround, Loaner Available
- 24 hrs Burn-In, 100% Q.C.
- Competitive Pricing

E.P. Electronics International
1757 E. Bayshore Road, 25-28, Redwood City, CA 94063
Tel: (415) 364-4929 Fax: (415) 367-7371

All listed manufacturers and products are trademarked and/or registered and are hereby acknowledged

TOSHIBA HEWLETT PACKARD IBM ZENITH CORNERSTONE

TEKTRONIX MIRROR NCD

MONITOR REPAIR

Any brand, Big Screen TV, SVGA, VGA, EGA, mono
two days turnaround, free estimate
free pick-up, free delivery.
120 days warranty parts & labor except for FPT, CRT.

Lee's Repair
337 N. Abbott Ave.
Milpitas, CA 95035
Ph (408) 263-6020
Fax (408) 263-2037

COMPUTER REPAIR
FREE DIAGNOSTIC

WHY PAY $40, $50 or MORE

Computer Training Academy will run a thorough diagnostic service check absolutely FREE!! Call Now for an appointment to have your equipment evaluated Today!

408-441-6990 ask for Mr. Stevens

CTA Inc.

Your One Stop
Solution For

Monitor
Repair

B&T Services
Computer Technology Services

3764 Polton Place Way., San Jose, CA 95121
1-800-642-2795 or 408-223-2722

Repairs

Repairs

REPAIR MEMORY MODULE'S
256K, 1MB, 4MB
SIMM, SIPP
◆ QUICK RETURN ◆
REPAIR LABOR: $5.00 (3 CHIPS) / $8.00 (9 CHIPS)
PLUS PARTS

BUY /SELL/TRADE
CALL FOR MORE INFORMATION
JET-COMP ENTERPRISES
44061 SO. GRIMMER BLVD.
FREMONT, CA 94538
TEL: (510) 770-9078 FAX: (510) 770-9060

UniTek Co.
Hard Disc Services
Specializing in repair of PRIAM
CONNER, MAXTOR, SEAGATE Hard Drives
From 85¢ per MB
(408) 395-0382

SYSTEM REPAIR
$70/HOUR PLUS PARTS
MONITOR REPAIR
$85 FLAT RATE
Does not include CRT tube or flyback module. Price includes parts in most cases.

Ask for Rick,
x 831
(510) 938-3443
LCE

Expert PC Help. Installation and configuration assistance, purchasing recommendations, problem solving, repair of PC, monitors, laser printers, etc. DOS, UNIX, LINUX, networks, etc. Affordable. Satisfaction guaranteed. (510) 283-6264.

Monitor and Terminal Repair. $75 Most Models. Warranty. 30 years experience. Call Beyond Repairs, 510/783-6805.

MacU

Macintosh Summer Computer Classes
Days & Evenings•Kids-Adults-Seniors
Beginning Mac, Excel, Word, Works,
PageMaker, FileMaker Pro & Quicken
Call MACtronics at (510) 438-0833

•Laser Printer Repair •Computer Repair
•Toner Cartridge Recycling/Free Cleaning
•HP •APPLE •QMS •IBM •FREE Pick-up & Delivery
•Loaners Avail. •We Buy Used Cartridges •On-Site Repair
The LaserDoc (408) 428-0556
2355 Oakland Rd. Suite 1K, San Jose, CA 95131

LASER PRINTER REPAIR
$59.00 + PARTS
(Seven days a week, 24 hours a day) • FREE Pick Up & Delivery in Bay Area • 1 Year Parts • 5 Years Labor Warranty
408-223-0433 • 415-777-5449
TCRC • LPR Division

C:\Computer & Monitor Sale & Repair
Free Advice & Carry-In Check Up. State Reg. No. E29924
$75+Parts*
PC Compatibles & Macintosh Monitors & Printers
SERVICE CITY
(510) 475-0747
1655 Whipple Rd.
Suite 22, Hayward, Ca. 94544
Fax (510) 475-7739
*Carry-in service rate. tm055

Services

CUSTOM MULTIMEDIA DEVELOPMENT. Windows-based. Interactive or self-running for trainings, tradeshows, presentations. (415) 854-6820.

ON-SITE/ OFF PC Training: Roxann Lewis, Certified WordPerfect Resource offers training in Excel, Paradox, Windows, WordPerfect DOS/Windows, Harvard Graphics, Lotus 123, PageMaker, More! 510-283-6221.

Inexpensive printer repair. Dot Matrix, HP Laserjets, Daisywheel Printers. Please call (415)668-2318.

Macintosh/IBM Systems & Printers. Rentals, Repairs & Upgrades, Sales-New & Used Classrooms, PC Support. PCR (408)453-9322.

Services

PHOTOGRAPHY FOR BUSINESS. Computers, lots more comercial experience. Call Len Cook for reasonable bid. (510)790-6079.

VIRUS PROTECTION SERVICE. Protect yourself from harmful viruses. Call Dan or Mike to schedule installation of unopened virus protection software on your PC or PC-LAN. Dan (415) 854-9542 or Mike (408) 997-8386.

Do you need computer repairs and upgades at a reasonable cost? Call us for free estimates and on-site service. Certified Apple, IBM, HP Technicians. Phone: 415-552-5120 San Francisco. Gerald A. Matoi & Assoc.

LASER PRINTER PRODUCTS. Service and supplies for over 240 models. Free delivery. Call (800) 870-6615 today and save!

Programmers, software Companies. I am looking for Hardware and Software to sell. Proven track-record. Call David (415) 807-1317.

DATA RECOVERY. Drives-Tapes-Optical. WE service all platforms. Authorized Data Recovery service center. GIGABYTES (510) 440-8032.

DATA RECOVERY

24 Hour Turnaround • Free Estimate
DATA-ONE
(408) 434-1002
940 Rincon Cir. San Jose
(HWY 880 & Montague)
9-5 Mon thru Fri

DATA·RECOVERY
Self Engineered Tools Provide Over 90% Success Rate • Competitive Prices
Specializing in DOS, Novell, & Macintosh.
Micro Storage
2245 First Street, Suite 116
Simi Valley, CA 93065
Tel (805) 582-9101
Fax (805) 582-9102

Don't Delay,
Do it Today!!!

DUPLICATION
IBM OS/2 • MACINTOSH • APPLE
COMMODORE • UNIX
24 Hour Turnaround.
Fastest in the West,
No Minimums!!! Custom Printed
Tyvek Sleeves & Labels
Optical Text Scanning
I.D. DISK CO. 415-883-4628
NATIONWIDE 1-800-882-6454

Repair & Sale
Hard Drives & Floppys
Data Recovery

SCSI ESDI ST506 PS/2 IDE
Novell XENIX/UNIX MACS

2122 Adams Avenue San Leandro, California 94577 (510) 430-0595
Drive Repair Services
Corporation
6151 Golfview Drive Bloomfield Hills, Michigan 48301 (313) 645-6211

C l a s s i f i e d s

Services

Services

Services

Services

Services

Services

SOFTWARE DUPLICATION

Complete Software Manufacturing Solutions

- Duplication 100% Guaranteed
- Ultra Competitive Pricing
- Custom Labels/Sleeves/Manuals
- Packaging & Assembly
- Highest Quality Media & Equipment
- Fast Turnaround
- Volume Discount. Call for Best Price!

APC, Inc.

29620 Union City Blvd. Union City, CA 94587
Local 510-489-8677 Fax 510-489-8678

800-666-1007

WE WILL BEAT ANY ADVERTISED REPAIR & SALE PRICE

HARD DRIVE REPAIR PRICE			SALE PRICE	*DATA RECOVERY
CAPACITY	MFM/ IDE/RLL	ESDI/ SCSI	MFM/RLL ESDI/SCSI	MFM/RLL/IDE ESDI/SCSI
10 – 19MB	$50	N/A	$60	$180
20 – 29MB	$55	$65	$69	$230
30 – 39MB	$65	$75	$79	$280
40 – 49MB	$75	$85	$109	$330
50 – 85MB	$105	$115	$169	$380
86 –119MB	$115	$125	CALL	$430
120 –160MB	$125	$135	CALL	$480
161 –230MB	$165	$175	CALL	$530
231 –430MB	$215	$225	CALL	$580
431 –700MB	$325	$335	CALL	$630

* Data recovery includes repair of the drive.
*No charge if we are unable to recover data.

FLOPPY DRIVE REPAIR PRICE	INSTALLATION
5.25" (360K & 1.2MB)............$20	HARD DRIVE......$30
3.5" (720K & 1.4MB)..............$25	FLOPPY DRIVE...$15
3.5" PS/2 (720K & 1.4MB).....$35	

WE BUY & TRADE-IN WORKING OR NON-WORKING HARD DRIVES & MONITORS

MONITOR REPAIR PRICE (12" & 11")

MONITOR QUANTITY	1	2-5	6-10	11+
•Any Mono	$39	37	35	33
•Any CGA	$55	53	51	49
•Any EGA	$59	57	55	53
•Any VGA	$69	67	65	63
•Any Super VGA	$75	73	71	69
•Any Multisync	$89	87	85	83
•Any Mono Terminal	$65	63	61	59
•Any Color Terminal	$89	87	85	83

CRT AND FLYBACKS EXCLUDED
**FREE Pick-up & Delivery in O.C. if More Than Five Monitors*

SPECIAL SALE OF THE MONTH

CONNER/MAXTOR/SEAGATE/W.D.	
130MB IDE New.........$185	8425S SCSI (20MB) Ref.........$65
170MB IDE New.........$199	ST225 MFM (20MB) Ref.........$65
210MB IDE New.........$239	ST238 RLL (32MB) Ref.........$75
245MB IDE New.........$269	ST251 MFM (40MB) Ref.........$95
340MB IDE New.........$359	TM364 RLL (40MB) Ref.........$85
	CP342 IDE (40MB) Ref.........$95

1 YEAR WARRANTY ON NEW DRIVES
6 MONTHS WARRANTY ON REFURBISHED DRIVES

FLOPPY DRIVES:

MANUFACTURE QUANTITY	1-5	6-20	21-50	51+
TEAC 1.2M/1.44M	$51/43	49/42	47/40	46/39
Toshiba 1.2M	$46	42	40	39
Y-E Data 1.44M/1.2M	$48/42	47/41	45/40	43/39

CONTROLLER

QUANTITY	1-5	6-20	21-50	51+
IDE w/I/O	$14	13.50	13	12.50
IDE wo/I/O	$8	7.75	7.50	7.25
MFM AT/XT	$39	36	34	29
RLL AT/XT	$39	36	34	29

PRO COMPUTER COMPANY

12761 Western Ave., Suite B
Garden Grove, CA 92641
Tel.: (714) 891-8293
Fax: (714) 891-3269

VISA MasterCard

Slides

Slides $8
4x5 Transparencies

PC Imaging Specialists
Presentation Graphics
Quattro Pro
.TGA .PCX .TIF .GIF

McLain Imaging
tel: (408) 252-6266
bbs: (408) 252 6265

Software

IBM Software. 100s to choose from $2 per disk. Send $1 (shipping & handling) for your shareware catalog on disk. Computer Allware PO Box 1060, Clearlake Oaks, CA 95423.

SOFTWARE

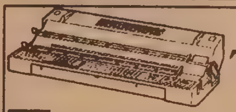
General Store, R/W POS	$495 up	Sales/ Service/ Contract Mgt	$Call
Bar/Restaurant Mgt & POS	$599 up	Contact Mgt/ Mass Mailer	$Call
Bakery Retail/ Wholesale	$Call	Complete Mail Order Mgt	$Call
Video Store POS	$550 up	SubContractors Management	$1290up
Medical & Dental Mgt	$595 up	Manufacturing Management	$Call
Veterinary, Phy Therapy	$995 up	Hotel/ Motel/ Resort Mgt	$Call
Legal & Court System	$Call	Wholesale Jewelers Mgt	$Call
Collision Est. & Shop Mgt	$1195up	Property & Rental Mgt	$599 up
Vehicle Maintenance Mgt	$Call	Product/ Services Distribution	$Call
Container & Shipping Mgt	$Call	Memberships, Baby Sitters	$75 up
Trucking/ Transportation Mgt	$Call	dTailorMade SBT Enhances	$Call
Auto/ Truck Leasing/ Rental	$Call	General Accounting System	$50 up
Public Warehousing Mgt	$Call	Popular S/W, Util, BarCodes	$35 up

H.S. BUNDLES - MAINT & MORE
CONTRACT PROGRAMMING
XBASE NETWORK SYSTEM
TEL: (510) 687-3629 BBS: (510) 687-3633

DOS
UNIX
VM386
NOVELL

Are you sure you're getting all of your health benefits? Claim Chek/macClaim Chek's master records remembers payer, patient, provider and subscriber information. Keep track of who's paying what, paid/unpaid claims, deductibles and copayments, types of claims, and single or multiple policies. Add-on modules available for claim form printing. On-line help. 4 Mice rating-MacUser 12/92. Macintosh or MS Windows $44.99 + $5 S/H

TeCorporation—Developers of software for everyday living
P.O. Box 140, Campton, NH 03223
Tel: (603) 726-7177 Fax: (603) 726-8818



The Laser Co.

Toner Cartridges 36.99

We support 200 laser printers and Cannon photocopy machines. New chemical process to coat the drum (extends the life of the drum to 7 recyle times). 20% more toner than the original. Free delivery (Bay area only) 100% guarantee or your money back Fast Service...... (patent Pending)

Laser Printer Repair Service Free Brochure Call 408 972-7915

HP series I ,II and III , Apple Laser Writer Plus,IINT,IINTX. Cannon CX and SX engine specialist
Free loaner, $ 20 diagnostics fee. WE ARE LASER PRINTERS SPECIALIST

Software

FREE PRINTED 122 PAGE CATALOG 3400+ IBM Prgms. ASP Vendor Sunshine Software, 6492 South St. Suite 470, Lakewood, CA 90713.

Q&A 3.0, factory cartons, upgradable, 10 UNITS $250; volume discounts, (415) 922-8751.

SAVE BIG! FOLLOW THESE STEPS: Step 1 - Stay home; Step 2 - call me - order new, unopened Q&A 3.0 for $50.00 including CA tax and surface mail; Step 3 - send in registration; Step 4 - call Symantec, order 4.0 upgrade (about $80); Step 5 - put over $175 savings in piggy bank. (415) 922-8751.

TrueType fonts for Windows 3.1. Shareware. 300/$30. Postscript format also available. (415) 728-5910.

Strategic Mapping, PC AtlasGIF b.2.0 database. New, unopened. Free software with registration $1700/OBO. Call Douglas at (408) 739-4234.

Excel 4.0 for Windows. New, in box, unopened. $200. Call Peter at (415) 255-3160 (eve.).

Software

Electronics Tutorial Software Program. Over 1,000 screens, 48 modules of interactive information, schematics and help on DC, AC, analog and digital. Use for job preparation, review, or study. Entire program $30. IBM. (monochrome EGA/VGA). Tutor-Tech, 5591 Kimberly St, San Jose. (408) 252-3223.

Novell Netware v3.11 20-user. Two packages left in stock. $1600 new. Out of business. (415) 343-7659.

Over 100 used games: MINT CONDITION! Very good pricing! Brand new SB-PRO compatible sound card. Call Tony at (415) 472-6937.

MS-C7 ($100), Multi-scope Debugger Windows 2.0 ($250), 386 MAX 6.0 ($50), ApplicationCtor ($60), MS - Windows 3.1 ($50). (408) 272-4513 King.

IBM and Unix connection solution for downsizing and distributed processing. Instant results and investment returning. (408) 997-7579.

Novell Netware V4.0, 5 users, new, inbox with warranty and registration $875. (415) 587-0457.

Asian Nudes! Exotic women of the Orient. $5. for 1.44MB sampler. Cyber-Graphix, 2040 Polk #317, San Francisco, CA 94109. Must state over 21!

New to computers? Hard-to-understand manuals keep you frustrated? Computer companion books can help. Only what you want to know. Be creative! Not frustrated. Spiral-bound. *Word/Windows*Excel*AmiPro*Windows*MS-DOS*WordPerfect/DOS $12/each. 2 or more $11/each. Free games/utilities disk with each book. SS Publishing, P.O. Box 1839, Dept MT, Pollock Pines, CA 95726-1839. Send $1 for catalog (refundable with order). (916) 644-8262.

AutoCad 12 for Windows. Unopened, unregistered. $1700/OBO. Cash for REL 10 & 11 licenses, legitimate only. (415) 355-9506.

Software Wanted

NEW SOFTWARE PRODUCTS WANTED...To acquire/license...By Small Successful Software Co...fax brief synopsis of software capabilities & target market to: PERFECT NICHE SOFTWARE, INC. Fax: (415) 331-4200.

Wanted: Educational software for kids, ages 4-14. No games. IBM compatible. Call or fax (510) 820-7920.

Employment Information

$200-$500 WEEKLY. Assemble products at home. Easy! No selling. You're paid direct. Fully guaranteed. FREE Information-24 Hour Hotline. 801-379-2900. Copyright #CA088850.

Sales Position: SJ Dealer, PC sales, experience, commission + salary. Plese fax resumes to RT Computers (408) 437-1156.

Sales - Computer. Successful 9 year old computer retailer seeks experienced Compaq & Apple sales people. Excellent salary and commission. Send resume to: Computerland, 409 So. Spruce Ave., So. San Francisco, CA 94080.

Sales - Computer. Bay Area volume dealer looking for successful sales people with proven track record in SF or SJ area to join Corp Sales Team. Authorized Apple/Compaq/HP. Excellent comp plan. Send resume to: Computerland, 409 So. Spruce Ave., So. San Francisco, CA 94080.

Computer Technician. Computerland offers a wide variety of technical challenges to customer service reps w/ 2 years exp. Apple/IBM/Compaq. Excellent salary. Send resume to: Computerland, 409 So. Spruce Ave., So. San Francisco, CA 94080.

BIIIG COMM!! LTI is looking for an experienced salesperson and outside sales rep. Please call Betty at (408) 481-0865.

900 NUMBERS MAKE MONEY! Put your computer to work! Outstanding guidebook, 24hr. recorded details 1-800-369-1410.

ConsultantsNetwork

Employment Information

COMPUTER SUPPORT

Part-time. Growing publishing co. seeks Macintosh technical support (Hardware/Software expertise). Position will be responsible for network admin., hardware maint., applications support, software library & user training. Min. qualif: 3 yrs. relevant exper. in supporting MACS on a LAN & training users; in-depth knowledge of a variety of applications for desktop publishing, financial & telecommunication use. Communications skills & a Bachelor Degree in computer science or related field is preferred. We offer a competitive salary. For consideration, please send resume & salary reqs. to: **Controller**

3470 Buskirk Avenue
Pleasant Hill, CA 94523

Engineering

NVC Circuits Design
(408) 251-3027
PCB layout design
Schematic capture
Pcad or Pads2000
$1.35 per pin
Fast turnaround
High density
Leaded or SMT devices
Single-dbl-multilayers
Contract or sub-contract
Weekdays or Weekends
Why autorouting?
Manually route $.075 a pin
Photoplotting-Penplotting
Fabrication-Consulting
Satisfaction guaranteed

Ludiek Design Inc
Turn-key Engineering Services
Mechanical ~ Hardware ~ Software
Technical Documentation
PC Boards
⇒ *Ph/FAX 408/462-2722* ⇐
3567 Benton Street, Suite 363, Santa Clara, CA 95051

PCB LAYOUT: Using Pads software, fast turnaround, satisfactory guarantee, lowest rate. Fax or message (415) 493-6826.

ENGINEERING: POWER SUPPLIES Des/dev power supplies & battery chargers. Circuit Power, Don Frevert (408) 739-0303.

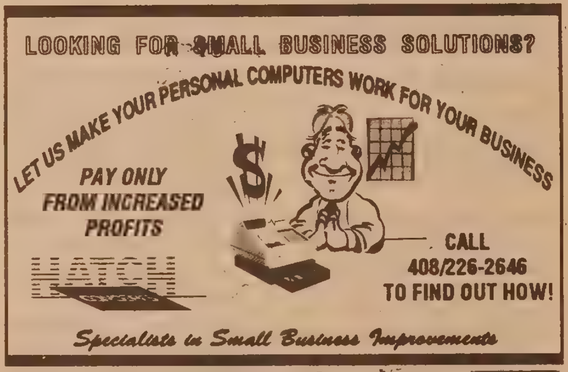
Analog/Digital/Circuit/Systems design. Software: Assembly/'C'. Call for details. FTE, Inc., Fred Tanaka (510) 782-4223.

MECHANICAL DESIGN AND DRAFTING. ACAD Services AT Reasonable rates (408) 926-4128.

Finance

FAST FUNDS - TO 90% ON GOOD BUSINESS RECEIVABLES. (408) 730-4040.

General


LOOKING FOR SMALL BUSINESS SOLUTIONS?
LET US MAKE YOUR PERSONAL COMPUTERS WORK FOR YOUR BUSINESS
PAY ONLY FROM INCREASED PROFITS
HATCH
CALL 408/226-2646 TO FIND OUT HOW!
Specialists in Small Business Improvements

Professional Technical Services

DOS, Windows & OS/2 support for business

● Setup & configuration ● Networks ● Communications ●
● On-site support ● Data recovery ● Programming ● Debugging ●

Database & Spreadsheet programming - *Excel & Paradox*

On-site support available 24 hours a day - 7 days a week

John Purins 415-340-1744

General

MERIT
Software Systems
Software development in Clipper, Paradox, C++ for DOS/Windows. Network Installation.
(707) 552-2618

GET MORE OUT OF YOUR COMPUTER!
Friendly computer wizard with experience will help maximize your use of:
■ Accounting ■ Word Processing
■ Database ■ Spread Sheet
Free first consultation • Sampson Information Systems
415/469-9852

INEXPENSIVE NOVELL NETWORKS
- System Design and Installation
- Software Configuration
- Cabling Installation
- Service and Support

References available
EASY Computing
Free Initial Consultation
(415) 668-2318

P.C. HACKER
SETUP, INSTALL, CONFIGURE, PERIPHERALS, CARDS, DRIVES
486 OVERDRIVES.
DOS and WINDOWS
on-site consulting and support
Free Estimate!
(415) 755-2284

MORE THAN ONE LOCATION? COMMUNICATE! Automatic, Unattended PC Communications. Appropriate. Inexpensive. LAN interface. Effortless Offsite Backup Available. Augustine Associates. 415/285-7064.

Macintosh Wrangler, Tame your ornery Mac problems. Purchase advice, set up, one on one training, networks. Installs/upgrades by Apple certified technician. Call Frank at Yoyodyne Systems (415) 879-0285.

FRP DATA SERVICES. PC Consulting. HW/SW Installs & Upgrades. System Analysis, Virus Detection, Data Recovery, Disk Compression. (408) 377-1470.

Expert PC Help. Installation and configuration assistance, purchasing recommendations, problem solving, repair of PC, monitors, laser printers, etc. DOS, UNIX, LINUX, networks, etc. Affordable. Satisfaction guaranteed. (510) 283-6264.

Important Notice! A computer failure shouldn't signal the end of your business but choosing the wrong computer company could. At Tangible Computer Solutions we demolish computer problems, not businesses. **Contact Rob at (415) 804-5386 pager. TANGIBLE COMPUTER SOLUTIONS.**

COMPUTER CONSULTANT/TUTOR HW/SW Installations, Configuarations, Friendly Personalized Tutoring . $25/hr. AAA COMPUTER NUT (408)376-0987.

Computer Problems? For inexpensive trouble shooting. Call PC Consultants Now! (415)589-3385 or (510)569-9003.

LAN

NOVELL NETWORKS, CNE.
- Design and Installation
- Hardware and Software Configuration
- Support and Service
- Free Consultation

COMTEQ COMPUTER CO.
(408) 988-4440

NOVELL SPECIALIST
-Install, Service, Troubleshoot
-Custom Network Software
-Backup Service & Data Recovery
-Certified NetWare Engineers
ABSOLIC COMPUTING
(415) 858-2680

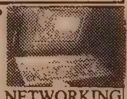
NOVELL NETWORKS, CNE. Design and Installation, Hardware and Software Configuration, Plus Support and Service. Free consultation. COMTEQ COMPUTER CO. (408) 988-4440.

Macintosh - SCO UNIX connectivity. Moonlight consultant; product recommendations, installation, training for small businesses. Ron (408) 374-6093.

LAN

Microscale Networkings
Novell Certified NetWare Engineer
-Small Office Installation
-Flat Rate
-Free Consultation
-Service and Support
(415) 334–2307
pager (415) 201–2798

BEST CHOICE NETWORKING



○ LANS SETUP
○ NOVELL
○ UNIX
○ LANTASTIC

BEST CHOICE NETWORKING
P.O.BOX 2458
MENLO PARK, CA 94026
(415)-367-6123
CALL ABOUT COMPETITIVE PRICING

BATTERY BACKUP FOR NOVELL with shutdown and monitor software 750VA, new, $399. (408) 986-8300.

NOVELL Certified Netware Engineer. Installation, service and troubleshooting 10 years experience. LAN SOLUTIONS, Novell authorized reseller. (415)579-1004.

FACTORY LOW PRICES. SAMS 386-486 Computers & Network Servers. Sales, Repair, Upgrade. Network installer and cabling. Hector Phone/Fax (415)821-0122 Pager 915-0346.

Legal

INCORPORATION. Nevada $399, CA $299. Do yourself books Trademark, Copyright, Patent (408)559-3949.

IMMIGRATION

Law Offices of Paul M. Heller
Specializing in
Labor Certification & Work Visas for
Engineering, Computer, Accounting, Business, & other Professionals.

Also: family visa/US spousal cases; change to student (F-1) status; Treaty Trader/Investor (E-1/E-2); Intra-company transferee (L-1).

Individual, Bus. & Corp. Clients

Free Consultation!

415-291-8000

Programming

CUSTOM DATABASES FoxPro, FoxBase, dBase, Clipper, Paradox. Multi-user systems, software modifications, code generators, PC/LAN, SBT. Walter St. John: voice (510) 548-0129; pager (510) 310-2080.

Programming

PARADOX
✓ On-Site Training
✓ Applications
✓ Troubleshooting
OTM ENT. 510-886-1557

INFORMIX
4GL ESQL/C
SQL C-ISAM
CAMCORD SOFT
(510) 803-9369

FOXPRO, CLIPPER, DBASE, UNIX/XENIX, BBS SYSTEMS. Specializing in design and development for Single and Multiuser Business Applications. Professional solutions at reasonable rates. Just Computers! (707)769-1648.

Programming, Assembly, 8096 8051. Free TANGO-ROUTE PRO demo at your site. Labtex, (408) 377-4824; fax (408) 559-7630.

OFFSHORE SOFTWARE SERVICES AT 50% OF YOUR COST! Data Entry, Software Development, QA, Maintenance, and Porting. DOS, UNIX and MAC. Contact REMOTE SOFTWARE SERVICES, 59 Lupine Ave, Suite 203, San Francisco, CA 94118. Tel: (415) 386-0984 Fax: (415) 386-0284.

FILEMAKER PRO FOR MACS & PC'S. We specialize in database programming for small businesses. We can either teach you how to use Filemaker, or we can set up a database for you to use. We also use Excel, Word, Quark, Pagemaker, Access, Wordperfect, Foxbase+, and others. Phone: 415-552-5120 San Francisco. Gerald A. Matoi & Assoc.

Costly to get help? From your idea to software package. ARYAN (415) 928-7125.

QUALITY DATABASE PROGRAMMING. Custom database applications development, dBASE, FoxPro, C and more. Tailored to your business needs. Call (510) 687-9380.

50% OFF YOUR COST. OVERSEAS DATA ENTRY, S/W DEVELOPMENT, DOS AS/400 WINDOWS. CONTACT FAR EAST DATA CO. TEL & FAX: (408) 249-8344.

DATABASE PROFESSIONALS: Mac: 4th Dimension, FoxBASE +, FileMaker Pro. PC: dBASE, FoxPro, Paradox, Clipper. Pinpoint Solutions (415) 323-6043.

Computer Consultant. Custom Paradox Database Application Development. Call Andy at Computek Solutions (408) 241-0863.

BAR CODE INVENTORY. Efficient "C" Systems. Quick Delivery. National References. 1-800-872-1182.

Consultants Network

Programming

Software
Solutions Unlimited (408) 236-3723
Fast! Fast!! Mac Prototypes!!!
Fast Mac Application Development!
Software Testing/Quality Assurance: Mac and IBM
Application Porting from DOS/Windows, UNIX, Apple II, etc.
(to the Apple Macintosh)
GREG HOLENDA
Prototypes • Applications • Porting • Testing

Custom Database
Microsoft ACCESS
*Business Appl.
*Multi-User
*Accounting or
Image Database
*Very Low Rate
Network solution
Novell Authorized Reseller
FREE presale consultation
- design & installation
- maintenance contract
- hardware & software
V88 Systems (408) 957-5738

MACINTOSH MY SPECIALTY
Spreadsheet · Database · System Programming
Installation, training, troubleshooting
purchase advice — Mac and PC
Stanford C.S. degree · good references
Ken Brooks 415/856-1224

PARADOX for WINDOWS
Business Application Programming
OTHER DEPARTMENTS SPECIALIZING IN:
▪ FOX PRO ▪ PARADOX (DOS)
▪ C/C++ on WINDOWS and UNIX
DATATYPES • (408) 736-7844

CUSTOM PROGRAMMING
• FoxPro
• Clipper
• dBase IV
• Accounting Systems
• Bar Code Systems
• Multi-user
NETWORK INSTALLATIONS
NOVELL.
SINCE 1983 • MEMBER BBB
AccounTech
408/995-5511

Business
Applications
Programming
Contact Jim at:
(415) 747-0748
Including:
Dbase Clipper FoxPro

Training

WORDPERFECT Certified Instructor. Planning, training, macro programming, document assembly. As profiled in InfoWorld. Kendall Callas (415)921-6850.

Tech Writing

Dr. DOCUMENT
House calls for ailing
-Product Help, Guides,
-Manuals, Specifications,
-Document Management
(510) 527-8736
Have MAC/PC Will Travel

SOFTWARE DEVELOPERS. We will write, illustrate, layout, design, typeset, print YOUR tech pubs. Call 408-559-DESK.

Software/Hardware Tech Writing/Editing English/German. (510) 778-9273.

From Concept to camera ready copy. Consulting, writing, editing and desktop publishing. Brochures, manuals or newsletters. Call Communitech. 510-527-6766.

Spanish Translation- Acccurate technical translation of manuals, instructions, letters messages. Carrali Design (408)737-8196

Documentation, customized manuals, help text and training materials for your software or application. Larry (415)692-0824.

Writing that works. User guides that guide your user. Maintenance manuals that are tools. Marketing bulletins that hit your target. PC and Mac. David Terrell (415) 948-1897.

Training

C.A. Systems
Training - Sales - Setup
Support - Installation
Authorized for:
DacEasy
TeleMagic
One Write Plus
AccPac BPI
AccPac Simply Accounting
Novell System Admin.
SCO Unix System Admin.
monthly classes
(415) 321-0728

MACINTOSH AND IBM-PC TRAINING Learn Windows, Excel, Clarisworks, MS Works, Workperfect, Word, Pagemaker, or Filemaker Pro, at your home or office. Phone: 415-552-5120 San Francisco. Gerald A. Matoi & Assoc.

CUSTOMIZED COMPUTER TRAINING, PROGRAMMING, GRAPHICS AND DATA ENTRY SERVICES BY EXPERTS. GET HELP! (818) 241-0810.

CLIENT/SERVER COMPUTING TRAINING WORKSHOP: MOVE UP WITH DATABASE TECHNOLOGY. Learn Oracle, Sybase, Gupta and Access in small class. Equip yourself to meet career and downsizing challenges. CompuEd (408) 253-4508.

ABC of Printing. Lecturer for DTP Designers. 40 yrs BizziBB 6363 Christies #407 E-Ville, CA 94608.

Mac Programming. Learn in 3 hours. Saturday 9-12, MT. View $79. Register (415)903-4922.

Continued from page 216

resources: at least 4MB of RAM and about 10MB of free hard disk space. Without a math coprocessor it can take *hours* for the program to render and animate a new species. To really appreciate the high-resolution graphics (640 x 400 pixels), you need a fast Super VGA card with at least 512K of video RAM. The program is installed from compressed files on four high-density 3.5" disks (other disk formats are available).

Graphics and Animation: 9
Sound: 9
User Interface: 8
Overall Value: 9

El-Fish demonstrates what Russian-American collaboration can accomplish. The design and programming was done in Moscow by Animatek, a team of Russian scientists and scholars. The development, packaging, documentation, and marketing was done by Maxis, those wonderful folks who brought you SimCity, SimEarth, and other software toys.

Marine biologists may be disappointed by the program's lack of real fish species, and its neglect of physiological variables like temperature, salinity, and oxygenation. Hard-core gamers may be disappointed by the lack of sharks and piranhas to eat the other fish. You have to appreciate El-Fish as a pure software toy, not as an ecological simulation. (Maxis, 2 Theatre Square, Suite 230, Orinda, CA 94563-3346. 510/254-9700, 1-800-336-2947)

PC SOFTWARE REVIEWS

MAJESTIC PLACES—MEDIACLIPS CD-ROM

Published By: Aris Entertainment
List Price: $39.95
Reviewed By: Woody Liswood

Majestic Places contains one hundred images and one hundred WAV files from a variety of places and landscapes.

To display and listen to all these goodies, you need an MPC-compatible microcomputer. Or, you need a Mac with System 6.06 or later, 8- or 24-bit color display, 32-bit color QuickDraw, and a CD-ROM drive.

The images and sounds are royalty free, although if you use them commercially, you must give credit to the artist.

The illustration of Half Dome was in full color on the CD-ROM. I downloaded it in both 8-bit BMP and PCX, as well as 24-bit TIF. All of the images had equal quality.

The software engine which drives the CD-ROM uses a display like your VCR. Arrows go forward or backward. A speaker horn turns on or off the sound. A clipboard displays all one hundred images at the same time so you can jump directly to the one you want. A slide show just rotates the pictures and the sound files until you stop it.

The display images are set for 800 x 600. On my 1024 x 768 screen, they were rather smallish, but perfectly usable.

At this price, it's not a bad way to add to your collection of potential images and sounds to gussy up any business or personal presentation. (Aris Entertainment, 4444 Via Marina, Suite 811, Marina Del Rey, CA 90292. 310/821-0234)

Continued...

HI-TECH USA

Milpitas
Phone: (408) 262-8688
Fax: (408) 262-8772

San Carlos
Phone: (415) 508-8688
Fax: (415) 508-0383

SUPER SALE

486DX2-66/256K EISA	$1,378
486DX-50/256K EISA	$1,298
486DX2-50/256K EISA	$1,278
486DX-33/1256K EISA	$1,158
486DX2-66/64K ISA	$1,308
486DX-50/64K ISA	$1,228
486DX2-50/64K ISA	$1,208

- Motherboard w/CPU
- 4MB RAM 70NS
- 1.2MB and 1.44MB FDD
- IDE Controller w/2S/1P/1G
- 130MB 16MS Hard Drive
- 101-Key Enhanced Keyboard
- 1024•768 .28DPI 14" Color Mon.
- 512K SVGA Card
- Enhanced Case w/Power Supply

Options

• Non-Interlaced Monitor	Add $25
• Viewsonic 6E Monitor	Add $70
• 1MB SVGA Card	Add $20
• 170MB Hard Drive	Add $30
• 200MB Hard Drive	Add $70
• 340 MB Hard Drive	Add $180

SUPER SALE

486DX2-66 LOCAL BUS	$1,338
486DX-50 LOCAL BUS	$1,258
486DX2-50 LOCAL BUS	$1,228
486DX-33 LOCAL BUS	$1,128
486DX-33/64K ISA	$1,088
486DLC-40/64K ISA	$968
486DLC-33/64K ISA	$908

- Motherboard with CPU
- 4MB RAM 70NS
- 1.2MB and 1.44MB FDD
- IDE Controller w/2S/1P/1G
- 130MB 16MS Hard Drive
- 101-Key Enhanced Keyboard
- 1024•768 .28DPI 14" Color Mon.
- 512K SVGA Card
- Enhanced Case w/Power Supply

Options

• Non-Interlaced Monitor	Add $25
• 1MB SVGA Card	Add $20
• Local Bus (1MB)	Add $70
• Local Bus S3 (1MB)	Add $100
• 200MB Hard Drive	Add $70
• 340MB Hard Drive	Add $180

SUPER SALE

486DX-33/64K ISA	$1,048
486DLC-40/64K ISA	$898
486DLC-33/64K ISA	$848
486SX-33/64K ISA	$948
486SX-25/64K ISA	$878
386-40/64K CACHE	$808
386SX-33	$768

- Motherboard w/CPU
- 4MB RAM 70NS
- 1.2MB and 1.44MB FDD
- IDE Controller w/2S/1P/1G
- 80MB 16MS Hard Drive
- 101-Key Enhanced Keyboard
- 1024•768 .39DPI 14" Color Mon.
- 512K SVGA Card
- Enhanced Case w/Power Supply

Options

• 1MB SVGA Card	Add $20
• .28DPI SVGA Monitor	Add $40
• Viewsonic 6E Monitor	Add $110
• 40MB Hard Drive	Less $40
• 130MB Hard Drive	Add $30
• 200 MB Hard Drive	Add $100

MULTIMEDIA SUPER SALE

Mitsumi CD-ROM	$194
SONY CD-ROOM 31A	218
Sound Blaster Pro Deluxe	124
Sound Blaster 15 ASP	168
Creative Labs CD-ROM & Sound Card	398
Creative Labs CD-ROM Upgrade Kit	430
Creative Labs Sound Blaster	74
Discovery CD 8 Upgrade Kit	398
Discovery CD 16 Upgrade Kit	478
Edutainment CD 8 Upgrade Kit	498
Edutainment CD 16 Upgrade Kit	548

CD-ROM TITLES

Animals v1.0	$20
Battle Chess	20
Campton's Encyclopedia	68
Chessmaster 3000	20
King's Quest V	17
Microsoft Bookshelf	38
Microsoft Works	38
Monkey Island	30
Sherlock Holmes	18
US Atlas & Auto Map	38
US History	28

and Many Many More...

TERMS AND CONDITIONS

1. One year parts and labor warranty on systems.
2. Knowledgeable technical support engineers in service.
3. Prices and availability subject to change w/o notice.
4. Shipping, insurance and COD charges are extra and non-refundable. Prices reflect cash discounts.
5. Return shipping must be insured, prepaid and bearing an RMA# on the shipping label.
6. Defective items replaced or repaired at our discretion.
7. No responsible for typos.
8. All returns subject to 15% restocking fee and cover only Hi-Tech USA brand computers, excludes peripherals and software. No refunds after 30 days.
9. Superior reputation for service, quality and value.
10. Purchase orders are welcomed and subject to approval.

Why do smart customers keep buying from HI-TECH-USA? Simply because we deliver the best values.

Call and join our smart customer list: ABC, ADAPTEC, ALLIED SIGNAL, AMD, AT&T, CIRRUS LOGIC, DATAQUEST, FLORIDA STATE UNIVERSITY, GENERAL ELECTRIC, IIT, INTEL, LAWRENCE LAB, MAXTOR, NASA, NATIONAL SEMICONDUCTOR, PG&E, QUANTUM CORP, SEAGATE TECHNOLOGY, SIERRA SEMICONDUCTOR, STANFORD UNIVERSITY, SUN MICROSYSTEMS, U.C. BERKELEY, WESTERN DIGITAL, YALE UNIVERSITY, and many, many more.

SYSTEM	M/B + CPU	* BASIC SYSTEM	BASIC SYS +40MB HDD + 14" MONO & MGP CARD	BASIC SYS + 40MB HDD + VGA CARD & MONITOR	BASIC SYS + 40MB HDD + SVGA CARD & MONITOR	BASIC SYS +80MB HDD + SVGA CARD & MONITOR	BASIC SYS +120MB HDD + SVGA CARD & MONITOR	BASIC SYS W/4MB RAM 1.2 & 1.44 FDD +130MB HDD +SVGA CARD & MONITOR	BASIC SYS W/4MB RAM 1.2 & 1.44 FDD +170MB HDD +SVGA CARD & MONITOR	BASIC SYS W/4MB RAM 1.2 & 1.44 FDD +200MB HDD +SVGA CARD & MONITOR
486SLC2-50/64C VLB	$338	$498	$708	$808	$842	$888	$908	$1,054	$1,084	$1,124
486DX2-66/128C VLB	604	764	974	1,074	1,108	1,154	1,174	1,320	1,350	1,390
486DX-33/128C VLB	394	554	764	864	898	944	964	1,110	1,140	1,180
486DX2-66/256C EISA	658	818	1,028	1,128	1,162	1,208	1,228	1,374	1,404	1,444
486DX-50/256C EISA	578	738	948	1,048	1,082	1,128	1,148	1,294	1,324	1,364
486DX-33/256C EISA	438	598	808	908	942	988	1,008	1,154	1,184	1,224
486DX2-66C ISA	558	718	928	1,028	1,062	1,108	1,128	1,274	1,304	1,344
486DX-50C ISA	498	658	868	968	1,002	1,048	1,068	1,214	1,244	1,284
486DX2-50C ISA	448	608	818	918	952	998	1,018	1,164	1,194	1,234
486DX-33C ISA	338	498	708	808	842	888	908	1,054	1,084	1124
486DLC-40/64C ISA	228	388	598	698	732	778	798	944	974	1,014
486DLC-33/64C ISA	174	334	544	644	678	724	744	890	920	960
486SX-33C ISA	238	398	608	708	742	788	808	954	984	1,024
486SX-25C ISA	168	328	538	638	672	718	738	884	914	954
386DX-40/64C	128	284	494	594	628	674	694	840	870	910
386SX-33	80	240	450	550	584	630	650	796	826	866

*** BASIC SYSTEM CONFIGURATION:**
Motherboard & CPU, 1MB memory installed, 1:1 2HD/2FD controller with 2S/1P/1G, 1.2MB or 1.44MB Floppy Drive, Internal Clock/Calendar, Enhance Case with Power Supply, and 101-Key Enhanced Keyboard.

VIDEO OPTIONS

14" Mono monitor	$90
14" SVGA monitor with 512k card	234
VGA-256K / 512K	26 / 36
1M SVGA card (1024•768•256)	54
Window Accelerator w/1MB	58
Cirrus Logic VLB w/1MB	95
Diamond Speed Star 24X w/ Hi-Color	142
Diamond Speed Star Pro VLB w/1MB	148
Diamond Stealth 24 w/1MB	148
Diamond Stealth 24 VLB w/1MB	168
Diamond Stealth Pro VRAM w/1MB	278
Diamond Viper VLB w/2MB	384
Orchid Fahrenheit 1280 Plus w/1MB	140
Orchid Fahrenheit VLB w/1MB	164
Orchid P9000 VLB w/3MB	322
ATI Graphic Ultra w/ Mouse	208
ATI Graphic Ultra Plus w/1MB	224
ATI Graphic Ultra Plus w/2MB	276
ATI Graphic Ultra Pro w/2MB	358
ATI Graphic Ultra Pro VLB w/1MB	288
Nanao F550i (17", 1280•1024, 0.28)	1,016
Nanao F340iw/T560i	668 / 1,650
NEC 3FGe / 4FGe	584 / 684
NEC 5FG OEM / Original	1,278 / 1,356
MAG 15F / 17F	532 / 988
Sony CPD 1304S / 1430	$526 / 576
Sony CPD 1604S / 1730	922 / 978
HITACHI CM-2085M+ (20")	1,242
HITACHI CM-2187M (21")	2,124
Standard VGA (640•480) Monitor 0.51	178
Super VGA (1024•768) Monitor 0.39	198
Super VGA (1024•768) Monitor 0.28	236
Super VGA Non-Interlaced Monitor 0.28	258
Viewsoic 4 E	271
Viewsoic 5 E	364
Viewsoic 5 +	464
Viewsonic 6 E	302
Viewsonic 6 FS	514
Viewsonic 7	898
Viewsonic 8	1,498
Viewsonic 15 / 17 / 20	618 / 1,164 / 1,788

HARD / FLOPPY DRIVE ADAPTERS

IDE 2FD/2HD Cache Controller	$108
IDE 2FD/2HD with 2S/1P/1G	13
VESA Local Bus IDE	48
Adaptec SCSI 1542BK w/Kit (ISA)	224
Adaptec 1542BK+	298
Adaptec SCSI 1742 (EISA)	392
Bustek SCSI (EISA)	270

NEW HARD DRIVES

40mb/28ms or 52mb/19ms (IDE)	$110 / 138
80mb/18ms or 120mb/16ms (IDE)	156 / 172
130mb/16ms or 170mb/16ms (IDE)	178 / 200
200mb/16ms (IDE)	238
240mb/15ms (IDE)	268
340mb/15ms (IDE)	348
540mb/13ms (IDE)	678
200mb/16ms (SCSI)	338
1.2GB/13ms (SCSI)	1,048

NEW PRINTERS

Citizen GSX-190 (9-Pin)	$158
Citizen GSX-230 (24-Pin) Quiet	248
Citizen GSX-240 (24-Pin) Quiet	298
Citizen GSX-145 (24-Pin)	388
Color Option for Citizen Printer	48 / 68
Panasonic KX-P1123	169
Panasonic KX-P1124 i / 1624	239 / 358
Panasonic KX-P2180 / 2123	164 / 218
Panasonic KX-P2124 / 2624	328 / 388

MATH COPROCESSORS

80287-10	$42
387SX-25 / 20 / 16	66
387DX-40 / 33	78 / 66

KEYBOARDS

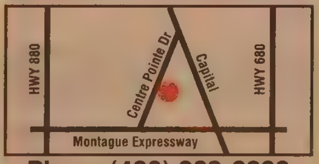
101 Enhanced Keyboard	$17
Maxiswitch / Keytronics	29 / 31
Focus 2001 / 9000	38 / 62
Omnikey 101NI / 102 / Ultra	64 / 64 / 84

MISCELLANEOUS

2400 Modem (w/9600 Send Fax)	$27
Fax Modem (9600 Fax, 2400 Modem)	48
Fax Modem (14,400 Fax, 14,400 Modem)	154
3-button Mouse	10
Mini Tower Case w/200W PS	50
Desktop AT Case w/200W PS	52
Medium Tower Case w/230W PS	80
Full Tower Case w/250W PS	108
Logitech Mouseman Serial/Bus	58 / 58
Logitech Trackman	72
Colorado Tape Backup DJ-10 (120mb)	144
Colorado Tape Backup DJ-20 (250mb)	192
Colorado Trakker (120mb/250mb)	336 / 392
ATI Sound Card Pro	108
Creative Labs Sound Blaster	74
Sound Blaster Pro w/MIDI Kit	168
Creative Labs CD-ROM Upgrade Kit	430
SONY CD-ROM CDU031 / 541	218 / 408
16-Bit Ethernet Card COAX/10Base-T	62

HOURS: Monday - Friday: 8am to 6pm
Saturday: 10am to 4pm

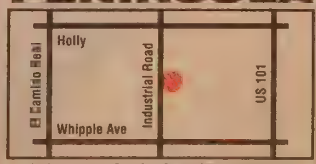
SOUTH BAY



Phone (408) 262-8688
1558 & 1562 Centre Pointe Drive
Milpitas, CA 95035 Fax (408) 262-8772

HI-TECH USA

PENINSULA



Phone (415) 508-8688
981B Industrial Road
San Carlos, CA 94070 Fax (415) 508-0383

DRIVEPRO

Published By: Micro House
List Price: $99.95
Reviewed By: Woody Liswood

A while back I reviewed the hard drive dictionary from Micro House. Now that I have their companion DrivePro software, which does everything I can think of doing to a hard drive, I'm even more convinced that anyone who installs or services hard drives must have both the disk and the dictionary.

DrivePro runs from a floppy. When it boots, you get a screen telling everything it discovers about your drive in the CMOS. If you are installing a brand new drive, you can select it from DrivePro's internal dictionary, and DrivePro will set the CMOS parameters for you. If you lose your CMOS, you can let DrivePro reset it for you, assuming that you didn't forget to write down the drive parameters when you started the computer.

In addition to containing all of the popular drive parameters, DrivePro lets you do diagnostics on IDE, ESDI, MFM, and SCSI hard drives. DrivePro also formats, partitions, and edits any sector of any disk.

DrivePro does get fancy. When you partition your hard drive, you can have a number of different types of boot records. The Master Boot Record is the program code located on the first sector of the hard drive and is run every time you boot your disk. DrivePro lets you have a multi-boot record, which will allow you to boot from any bootable partition on the disk. DrivePro can create a normal boot record, just like you used the FDISK program which comes with DOS. DrivePro also creates a BIOS extended boot record. This type of record lets you have a custom drive type which is not contained in your BIOS.

One of the problems DrivePro solves is when your hard disk will not boot. One solution is to redo the low-level format. Another is to try to redo the SYS option that comes with DOS. Your other option is to let DrivePro create a new master boot record as well as a new DOS boot record and, if you wish, put in a new set of DOS system files. If you are a support person, this single feature could save you most of your hair, which you no longer need to pull out when you contemplate a computer that should boot, but doesn't.

The documentation is well done, showing illustrations of each of the screens you will encounter, and containing lucid information about the program and its features. If, however, you are technically astute enough to really need this program, you will probably never need to look at the documentation, since the menu structure is self-explanatory, and everything works as expected. (Micro House, Inc., PO Box 17515, Boulder, CO 80301. 303/443-3388)

PC HARDWARE REVIEW

BACKPACK HARD DRIVE

Manufactured By: MicroSolutions
List Price: $669, 80MB drive
Reviewed By: Woody Liswood

Backpack is a no-slot, portable hard drive which attaches to your microcomputer through the parallel port. Your printer attaches to the Backpack and receives passthrough information.

I tested the 80MB drive with a variety of desktop and laptop computers. It worked perfectly with the different devices. You simply load a device driver through the config.sys file, and your system will recognize Backpack as just another drive.

For anyone regularly working with several computers and transferring information between them, backpack is ideal. Back up programs see Backpack as a DOS device. For transferring, backup to the Backpack, at hard disk speeds. Take the Backpack to the other computer, and restore the data. This works faster than tapes or floppies.

If you have an older laptop with no hard drive, Backpack offers a great solution. But, since Backpack is not battery powered, your older laptop will become a bit less portable. If you only work in hotel rooms or in an office, Backpack is a great choice.

Backpack measure 1.5" x 4" x 7.75" and weighs 2lbs. by itself. The wall plug, with transformer, adds another pound. The average access time was around 20 milliseconds. It has shock resistance of over 5G when not operating and 5G when in use. I dropped mine at least twice when traveling and never had a problem. About the only thing I could not figure out was how to make Backpack into a boot device. (MicroSolutions, Inc., 132 W. Lincoln Highway, DeKalb, IL 60115. 815-756-3411)

AMIGA SOFTWARE REVIEW

IMAGEFX

Published By: Great Valley Products
List Price: $259
Reviewed By: Douglas J. Nakakihara

Great Valley Products has delivered one of the most comprehensive 24-bit image processing packages available on any desktop computer platform. ImageFX includes tools for color balancing, color effects, image compositing, image manipulation, filtering, morphing, and special effects. You can even touch up images or create new ones from scratch using the painting tools. There are a variety of scanners and framegrabbers, and of course, ARexx is also supported. Since it loads and saves in many different formats (BMP, TIFF, JPEG, ILBM, and Targa to name only a few), it is

Continued on page 303

DATA RECOVERY
Drives • Tapes • Optical Media
We offer service on multiple platforms - DOS, Novell, Macintosh, UNIX, XENIX, Banyan, OS/2, Sun, Bernoulli and More!
Our custom data recovery increases your chance for a successful recovery. Our specialized techniques include:
- Class 100 Clean Room
- Proprietary Software Tools
- Recovery of Hard Drives, Tapes and Optical Media
- Novell Netware Fixtures/Software Tools
- Data Protection Safeguards

authorized service center
GIGABYTES
TEL: (510) 440-8032 FAX: (510) 440-9099

Best Prices! Best Quality! Best Service!

CALL FOR UPDATED PRICES

LAITRON COMPUTER WEEKLY SPECIALS

486-66/256K

- Diamond 2 VESA Local Bus Board w/ on board IDE controller
- Intel 80486DX2-66 CPU w/fan
- Flash BIOS,C&T Chipset
- 8 MB RAM 70ns
- Teac 1.2 MB Floppy Drive
- Teac 1.44 MB Floppy Drive
- AT I/O 2S/1P/1G
- Western Digital 212MB 14ms HD
- Focus 9000 128 key Keyboard
- Diamond Stealth VESA Local Bus
- Viewsonic 6FS 15" N-I Monitor
- Medium Tower Case
- 250-Watt Power Supply

$2250

486-66/256K

- Orchid 2 VESA Local Bus Board
- Intel 80486DX2-66 CPU w/fan
- AMI BIOS, OPTI Chipset
- 8 MB RAM 70ns
- Teac 1.2 MB Floppy Drive
- Teac 1.44 MB Floppy Drive
- VESA Local Bus IDE
- AT I/O 2S/1P/1G
- Western Digital 212MB 14ms HD
- Focus 9000 128key keyboard
- Orchid VA805 VESA Local Bus
- Mag 15F 15" N-I Monitor
- Medium Tower.
- 250-Watt Power Supply

$2250

486-33/64K

- 2 VESA BUS BOARD
- Intel 80486DX-33 CPU
- AMI BIOS
- 4 MB RAM 70ns
- Teac 1.2 MB Floppy Drive
- Teac 1.44 MB Floppy Drive
- IDE/IO 2FD/2HD/2S/1P/1G
- 32-bit Local Bus
- Western Digital 212MB 14ms HD
- Mitsumi 101-key Keyboard
- VESA LOCAL BUS VIDEO 1MB
- 1024x768 .28dp SVGA Monitor
- Medium Tower Case
- 250-Watt Power Supply

$1349

386-40/64K

- AMD 80386DX-40 CPU
- AMI BIOS & Math-Co Socket
- Internal Clock/Battery
- 4 MB RAM 70ns
- 1.2 MB Floppy Drive
- 1.44 MB Floppy Drive
- IDE 2FD/2HD Controller
- AT I/O 2S/1P/1G
- Conner 80MB 17ms HD
- Mitsumi 101-key Keyboard
- Trident SVGA with 512K
- Viewsonic 2 w/.28dp VGA Monitor
- Mini Tower Case
- 200-Watt Power Supply

$859

HARD & FLOPPY DRIVES

CONNER CP30084E 80MB 18ms IDE	$158
CONNER CP30104 120MB 16ms IDE	$178
CONNER CP30174 170MB 16ms IDE	$206
CONNER CP3544 540MB 13ms IDE	$715
MAXTOR 7120AT 130MB 15ms IDE	$180
MAXTOR 7213AT 213MB 15ms IDE	$260
MAXTOR 7245AT 245 MB 15ms IDE	$270
MAXTOR LXT340AT 340MB 13ms IDE	$385
MAXTOR LXT535A 535MB 12ms IDE	$788
QUANTUM ELS127 127MB IDE	$198
QUANTUM LPS240 240MB 15ms IDE	$298
QUANTUM 525MB 13ms SCSI	$740
QUANTUM 525MB 12ms IDE	$725
TOSHIBA 877 MB 12ms SCSI	$980
WESTERN DIGITAL 212MB 14ms IDE	$253
WESTERN DIGITAL 340MB 13ms IDE	$360
TEAC 1.2 MB Floppy Drive	$53
TEAC 1.44 MB Drlive	$50

CONTROLLER CARDS

IDE 4FD/2HD	$34
IDE 2FD/2HD/2S/1P/1G	$14
TYAN VESA Local Bus IDE	$54
ADAPTEC 1522 SCSI	$98
ADAPTEC 1542C SCSI Kit	$236
ADAPTEC 1542B	$178
ADAPTEC 1742 EISA SCSI	$395
TECO VESA IDE CACHE	$185
IDE Cache Controller ISA	$110
ULTRASTOR 34F VESA	$275

MEMORY & MATH-CO

1 MBx9 SIMM 60ns	$38
1 MBx9 SIMM 70ns	$36
4 MBx9 SIMM 60ns	$154
4 MBx9 SIMM 70ns	$140
CYRIX 387DX-40/33/25	$85/$68/$68
CYRIX 387SX-25/20/16	$68
INTEL 80387DX-33/25	$79
INTEL 80387SX-16/25	$75

MONITORS

ADI 4G 15" .28 1280X1024	$430
HITACHI CM-2085/2187M+	$1240/$2120
KFG 15" 1280X1024 NIT	$470
MAG 15F/17F (15"/17", .26dp)	$535/$980
NANAO 340i/F550iW/T560i	$670/1085/$1650
NEC 3FGE/4FG E(15", .28dp)	$585/$685
NEC 5FGE/5FG (17")	$1150/$1358
SONY CPD-1304/1604	$524/$900
SONY 1430	$570
VIEWSONIC 4E/5E/5+	$270/$365/$460
VIEWSONIC 6E/6FS/15	$303/$512/$625
VIEWSONIC 7/17/8/20	$890/$1160/1496/1785
Mono14"/Mono VGA 14"	$92/$112
VGA 14" .51/.39	$175/198
SVGA 14" .28dp/Non-INT	$237/$260

VIDEOCARDS

ATI Graphic Ultra Pro 1MB/VLB 2MB	$275/370
ATI Graphic Ultra Plus w/2 MB	$275
ATI Graphic Ultra w/1 MB & Mouse	$200
CIRRUS LOGIC VESA Local Bus w/1 MB	$100
DIAMOND SpeedSTAR 24 w/Hi-Color & 1 MB	$139
DIAMOND SpeedSTAR 24X w/Hi-Color & 1 MB	$140
DIAMOND Stealth 24 w/Hi-Color & 1 MB	$147
DIAMOND Stealth 24 VESA Local Bus w/1 MB	$165
DIAMOND Stealth Pro VRAM w/2 MB	$345
DIAMOND Viper VESA Local Bus w/2 MB	$385
ORCHID Fahrenheit VA801 w/1 MB	$142
ORCHID Fahrenheit VESA Local Bus w/1 MB	$163
ORCHID ProDesigner IIS w/Hi-Color & 1 MB	$109
ORCHID P9000 VESA Local Bus w/3 MB	$315
TRIDENT 256K/512K/1 MB	$31/$38/58
TSENG LAB VESA Local Bus w/1 MB	$110

MOTHERBOARDS W/CPU

DIAMOND 486DX2-66/256K w/2 V LB	$755
ORCHID 486DX2-66/256K w/2 VLB	$715
ORCHID 486DX-50/256K w/2 VLB	$665
486DX-33/66 /64K w/2 VLB	$385/610
NICE 486DX-50/256K EISA/VESA	$680
NICE 486DX-33/66 256K EISA/VESA	$555/758
486DX-50/256K ISA	$525
486DX2-66/256K ISA	$615
486DX2-50/256K ISA	$485
486DX-33/64K ISA(INTEL)	$365
386DX-40/64K	$139
386DX-33/64K	$135
386DX-25	$130
386SX-33	$85

KEYBOARDS

Enhanced 101-Keyboard	$20
FOCUS 2001 Keyboard	$39
FOCUS 5001 keyboard	$57
FOCUS 9001 Keyboard	$63
KEYTRONIC 101-key Keyboard	$32
MAXISWITCH 101-key Keyboard	$30
METEK K208 101-key Keyboard	$22
METEK K104 Click Keyboard	$42
MITSUMI 101-key Keyboard	$26
NORTHGATE Omnikey Ultra	$92

PRINTERS

CITIZEN GX130 COLOR 24PIN	$195
CANON BJ 200	$280(W/REBATE)
HP LaserJet 4	$1335
HP DeskJet 500	$375
HP DeskJet 550C	$685
HP PaintJet	$699
PANASONIC 2180	$165
PANASONIC 1123	$170
PANASONIC 1124i	$240
PANASONIC 2123	$220
PANASONIC 4410	$595

CASE&POWERSUPPLY

250W UL Listed Power Supply	$69
300W UL Listed Power Supply	$89
Desktop AT Case w/200W PS	$54
Full-size Tower Case w/250W PS	$112
Medium Tower Case w/250W PS	$82
Mini Tower Case w/200W PS	$51
Super Tower Case w/300W PS2 Fans	$190

MISCELLANEOUS

2400 Internal Modem	$27
9600/2400 Internal Fax/Modem	$48
9600/2400 Internal Fax/Modem(Windows)	$57
14400/14400 Internal Fax/Modem	$158
MS Compatible Mouse	$11
3M DC2120 Tape	$20
COLORADO DJ-10	$148
COLORADO DJ-20	$193
COLORADO Trakker 250MB	$390
COLORADO TC-15 controller w/data comp.	$195
COLORADO FC-10 controller	$95
IMPRESSION 3-Button Mouse	$18
IOMEGA 250MB Tape Backup	$210
LOGITECH First Mouse	$35
LOGITECH Mouseman	$58
LOGITECH Trackman	$73
MICROSOFT DOS 5.0(w/sys.)	$45
MICROSOFT Windows 3.1 (w/sys)	$45
MiCROSOFT mouse	$60

CD-ROM&SOUNDCARD

NEC CD-ROM & SOUNDCARD KIT	$800
NEC CD-ROM 84-1 (280ms)	$420
NEC CD-ROM 74M (280ms)	$570
MITSUMI CD-ROM(350ms)	$195
MEDIA VISION CD-ROM & Sound Card	$835
MEDIA VISION ProAudio Spectrum 16	$CALL
CREATIVE LABS SoundBlaster	$80
CREATIVE LABS SoundBlaster Pro	$130
CREATIVE LABS CD-ROM & Sound Card	$400
TOSHIBA CD-ROM3401B(200ms)	$420
TOSHIBA CD-ROM3401 EXT(200m's)	$520

CD-ROM SOFTWARE

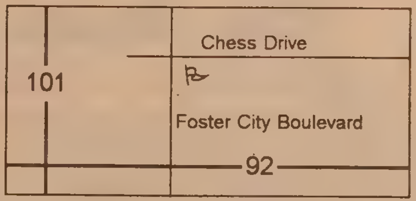
MS Bookshelf	$39
Beauty & the Beast	$19
Stellar Seven	$19
Animals by San Diego Zoo	$21
Seceret Weapon of Luftwaffe	$19
King's Quest V	$18
Loom	$18
Game Master	$19
Battle Chess	$22
Composer Quest	$45
Arcade Battles	$25
Chestmaster 3000	$20
Sherlock Holmes	$19

And Hundred more in store

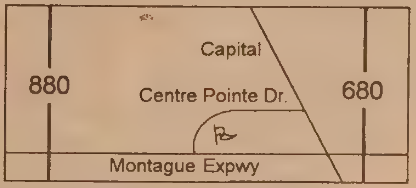
LAITRON COMPUTER

HOURS:

9:00 AM TO 6:30 PM M-F
10:00 AM TO 4:00 PM SAT



1169 Chess Drive, Suite E
Foster City, CA 94404
Tel:(415)578-8998
Fax:(415)578-8880



1646 Centre Pointe Drive
Milpitas, CA 95035
Tel:(408)945-1411
Fax:(408)945-1075

Terms&Conditions:

- Nationwide on-site service available
- Price and availability subject to change without notice
- Shipping, COD, & insurance are extra and not refundable
- Prices reflect cash discount
- All returns must have prior authorization
- All returns must be in original packaging complete with manual, software, ... etc.
- Not responsible for typos on this ad

continued from page 54

make it possible for a teleworker to exchange information with millions of people all over the globe. The text of this article was transmitted by commercial email to *MicroTimes'* main office. Because email automatically eliminates the problems of reaching people who work out of several locations or in different time zones, it's an inexpensive and effective way to keep teleworkers in closer touch with people at the home office.

Online Databases. Not all teleworkers need access to a company's computerized information. But those who do can benefit from technology making this information available over telephone lines. Bulletin boards, dial-in systems, and other computer devices make it simple, fast, and inexpensive to provide vast amounts of data to people working from home or distant offices. Using online databases also helps eliminate the problems of lugging heavy reference works, updating old manuals with the latest information, and worrying that printed materials containing confidential information will fall into the wrong hands.

PORTABLE INFORMATION DEVICES

Because teleworkers have at least two desks, one in the main office and one or more elsewhere, portability is a valuable attribute for everything they use a great deal. That's why more and more teleworkers are making use of three new technologies: portable reference devices, personal organizers, and laptop computers.

Portable Reference Devices. These "databook" devices provide a small, battery-powered screen on which to read books, encyclopedias, and other reference works recorded on interchangeable cartridges or disks. Nearly one in three teleworker households now own a portable reference device.

Personal Organizers. These are elaborate systems to record names, addresses, and telephone numbers, as well as appointment schedules and notes on meetings. For years, small notebooks with loose-leaf pages have been popular for this purpose. More recently, electronic versions have appeared that are smaller, lighter, more capacious and even somewhat automated. Both reference devices and organizers are gaining in popularity among teleworkers because they greatly reduce the bulk and weight of the information the teleworker must carry from place to place.

Laptop computers. Years ago, laptop computers were simple devices that only mimicked some of the simpler capabilities of desktop-size business computers. Today, laptops match all the power, speed, memory, and even color-screen capabilities of their larger cousins. Although keyboards are somewhat smaller, the best laptop keyboards provide the same spacing and feel as standard-size ones. The result: it's possible to put all your computer work into a machine the size of a small-town telephone book that weighs under six pounds, and carry it with you from home, to car, to office, and beyond. ■

MEMORY
We Buy and Sell DRAM, SIMM, SIPPS
At Very Good Prices, IBM Compatable & APPLE
Call For Latest Prices & Availability

COMPAQ®
PARTS & ACCESSORIES
ALL MODELS
30% OFF

WE CERTAINLY WELCOME
OEM & RESELLERS

•WE BUY SCRAP BOARDS w/MEMORY or CPU's...TOP PRICES!!
•WE ARE LOOKING FOR USED 1MBx1,80/70/60ns DIP's

C.G.I. TECHNOLOGY

CALL FOR LOWEST
GUARANTEED PRICE!
(408) 973-9840
Pager:(408) 697-4126
Fax: (408) 973-8710

We Beat Hi-Tech Prices!!

UNBEATABLE SPECIALS
Upgrade your 386DX to 486 Performance without buying a new motherboard!

TI/Cyrix 486DLC-33/40 CPU (Supports 386DX CPU Socket)	$97/138
TI/Cyrix 486DLC-33 w/64K motherboard w/Math Chip	239
Cyrix 387-40 Fast Math chip Intel 387SX	58/39
NEW ESDI 1:1 Cache Controller (Cirrus Logic Chipset)	109
NEW RLL 1:1 Controller (DTC 7287)	35
Orchid Fahrenheit 1280 (VRAM)	141
Digicom Scout Plus 14400/14400 Fax/Modem (Made in USA, 5 Yr. Warr.)	172

Inventory Clearance Sale!

XT/286/386 Motherboard	From $15	Memory Card, Controller	From $5
Hard Drives	From 20	Full Tower Case	From 35
Monitors	From 15	Printers	From 45

Monthly Specials!!

130MB (Maxtor) IDE	$184	Baby Tower Case	$48
210MB (Maxtor) IDE	264	Mid Tower Case	68
340MB (IDE,SCSI)	394/410	VL-BUS IDE/IO Card	42.50
SVGA Monitor (0.39)	199	VL-BUS VGA (Tseng Chip)	92
SVGA Monitor (0.28)	237	24/96 Fax/Modem	30
Viewsonic 6E	312	Archieve 250MB Tape Dr.	170
SVGA Card (256K/1MB)	23/45	386SX Notebook	925
Actix Engineer 2MB VGA	233	SIMM 60/70/80ns.	From 28.00
Mitsumi CD ROM w/Card	175	Mouse w/software	8.50
101 Keyboard	17.50	Modem w/software	9.00

VL-BUS 486DX2-66/128K Cache 486DX-33/128K Cache	486DX-33/64K Cache 486SX/64K Cache VL Bus	486DLC w/Math Chip Installed 386DX-33/64K Cache 386SX-33
$1299 $1088 486DX ISA 486DX EISA...Call	$1065 $998	$983 $883 $823

Complete System Includes: Motherboard, CPU, 4MB RAM, 1.2MB &1.44MB FDD, HD/FD Controller, 130MB Hard Drive, 101 Keyboard, SVGA Monitor w/SVGA Card, Power Supply.

MB+CPU	VL-BUS 486DX66/50/33	486SX/C	486DLC/C	386DX40/33	386SX
Price	$626/506/399	$264	$189	$135	$84

Palo Alto Micro Corp.
3483 El Camino Real, Palo Alto, CA 94306
415/493-8209 • Fax 415/493-4572
1-800-472-8209
M-F 9am-6pm & 8pm-10pm

7 Years in Business with Quality Parts & Service

Prices and Availability Subject to Change w/o Notice

HAVE QUESTIONS...CALL THE TECHNICAL EXPERTS

TRUST US . . . WE'RE DIFFERENT
Apple ZENITH IBM COMPAQ Macintosh
EPSON EVEREX TOSHIBA HEWLETT PACKARD ALR
Vertical Integration Specialists
GIGABYTES
Quality Service & Upgrades • On-Site & In-Shop Service

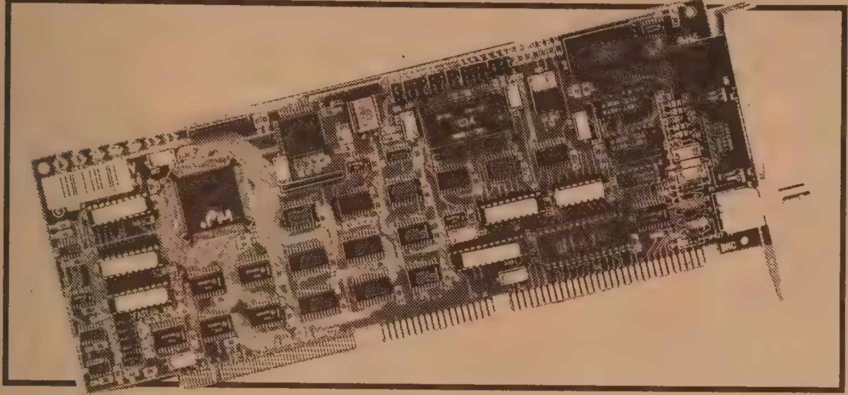
® Registered trademarks are by the respective companies

TEL: (510) 440-8032 FAX: (510) 440-9099

Lan Professional

Novell
Labs
Tested &
Approved*
TM

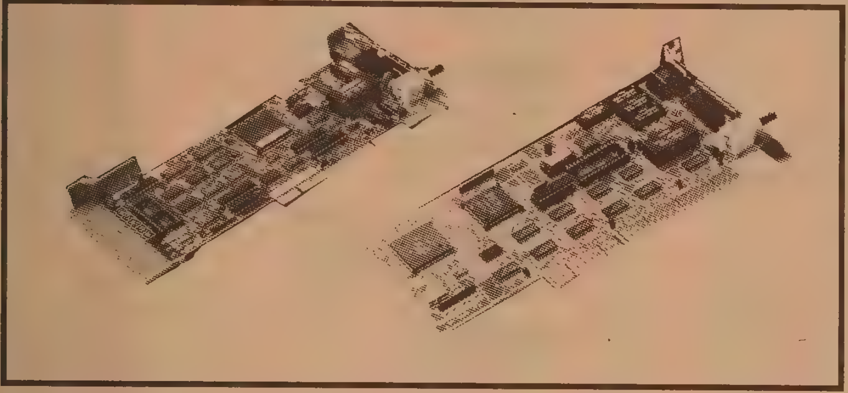
• LIFETIME WARRANTY & NOVELL CERTIFIED ON TOKEN RING & NE 1000 & 2000 ADAPTERS• 30 DAYS MONEY BACK GUARANTEE! • LIFETIME TECH SUPPORT WITH 3 ON-LINE CERTIFIED NETWARE ENGINEERS



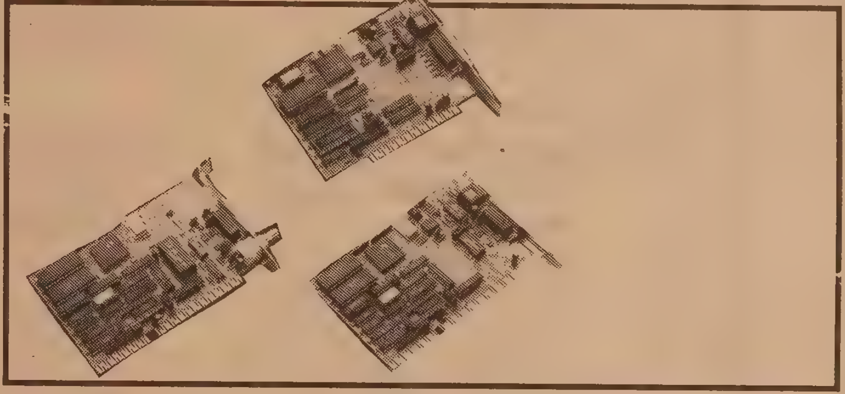
LANPRO EN-4200 VESA LOCAL BUS ETHERNET $359

INTELLIGENT LANPRO 4/16 TOKEN RING CARDS

4-/16Mbps ISA ..... $395 4/16Mbps MCA .. $435 4/16Mbps EISA ... $470



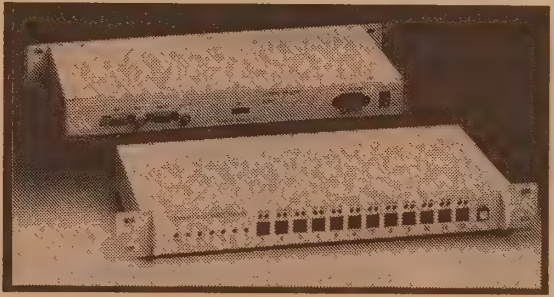
EN-2A 16-BIT MCA ETHERNET CARD $159
EN-3200 32-BIT EISA ETHERNET CARD $295



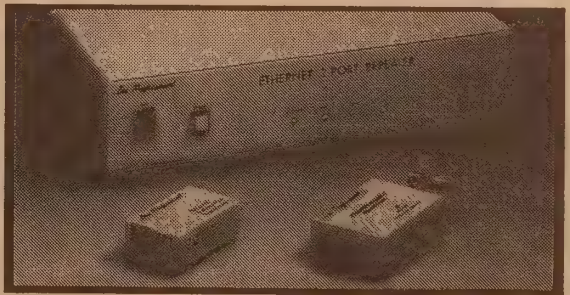
1000 & 2000 SERIES ETHERNET CARD

2000A 16 Bit Combo .... $90 2000T 16-Bit 10BaseT .... $85 2000C 16-Bit Coax $79
1000A 8 Bit Combo .... $72 1000T 8-Bit Combo .... $80 1000C 8-Bit Coax $69

EP-3000B: BNC Pocket Ethernet $169
EP-3000T: 10T Pocket Ethernet $169



ER-6390: 8-Port 10T Hub $275
ER-6391: 12-Port 10T Hub $529



ER-3390: 2-Port Repeater $295
ET-4000T/ET-4000B: AUI Transceiver $60

Professional On-site Lan Service

10 YEAR
EXPERIENCED
CNE TEAM

New Installation

Free on-site evaluation. Our professional services include cabling, hardware customization, software installation and working environment setup. System administration training provided.

LAN Upgrading/Expanding

We upgrade your existing network, no matter how small or old it is!

System Maintenance

Routine on-site maintenance. On-site trouble-shooting. Technical support Hot-Line.

Our CNE team, with the experience and expertise will not only keep your LAN in good working order but increase productivity!

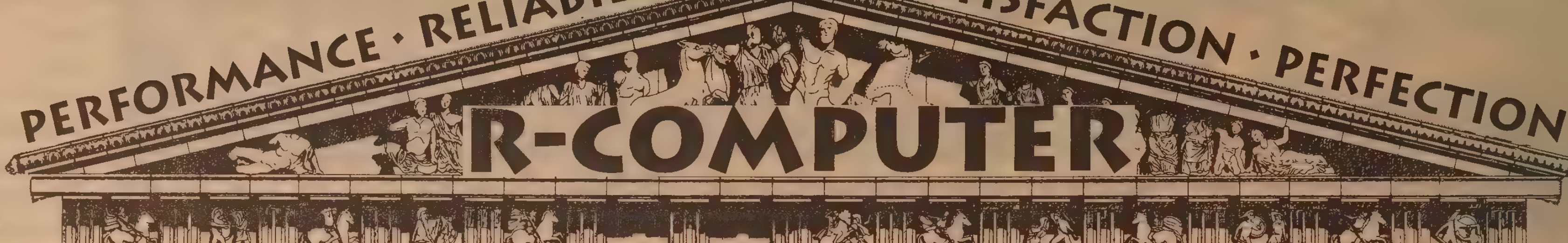
ΣDIMAX®

DEALER INQUIRES & CORPORATE PO'S WELCOME

CALL FOR DEALER & RESELLERS DISCOUNTS

3350 SCOTT BLVD., BLDG 9A, SANTA CLARA, CA 95054
SALES: (408) 496-1105/ TECH SUPPORT: (408) 988-6092
FAX: (408) 980-1530
DEALER INQUIRIES WELCOME: PRICES SUBJECT TO CHANGE W/O NOTICE
*SELECTED ITEMS NOVELL CERTIFIED

PERFORMANCE · RELIABILITY SATISFACTION · PERFECTION



R-COMPUTER

QUALITY AND PERSONAL SERVICE WITH EVERY SYSTEM

FREE PROFESSIONAL TRAINING PACKAGE WITH SYSTEM

486-33 W/128K CACHE 130MB HARD DRIVE SVGA SYSTEM

- 486-33MHZ W/128K CACHE CPU
- 4MB RAM
- 130MB MAXTOR HARD DRIVE
- VIEWSONIC SVGA MONITOR
- SVGA CARD
- 1.2 & 1.44MB FLOPPY DRIVE

COMPLETE SYSTEM WITH DELUXE CASE AND KEYBOARD

$1549

486-50 W/256K CACHE 170MB HARD DRIVE SVGA SYSTEM

- 486-50 W/256K CACHE CPU
- 4MB RAM
- 170MB MAXTOR HARD DRIVE
- VIEWSONIC SVGA MONITOR
- SVGA CARD
- 1.2 & 1.44MB FLOPPY DRIVE

COMPLETE SYSTEM WITH DELUXE CASE AND KEYBOARD

$1775

OWN THE FASTEST 486-66 VLB 245MB HD SYSTEM

- 486 W/256K CACHE W/DIAMOND USA MADE MOTHERBOARD - FLASH BIOS
- 8MB RAM
- 245MB QUANTUM HARD DRIVE
- VIEWSONIC SVGA MONITOR
- DIAMOND VIPER WEITEK CO-PROC. VLB VIDEO
- 1.2 & 1.44MB FLOPPY DRIVE

COMPLETE SYSTEM WITH DELUXE CASE AND KEYBOARD

$2524

COMPLETE 486 MULTI-MEDIA SYSTEM

- 486-33MHZ W/256K CACHE CPU
- 4MB RAM
- 130MB MAXTOR HARD DRIVE
- VIEWSONIC SVGA MONITOR
- SVGA CARD
- 1.2 & 1.44MB FLOPPY DRIVE
- MEDIA VISION
- PRO AUDIO SPECTRUM-16 BIT
- TEXXEL CD ROM (300KB SEC/265MS)
- STEREO SPEAKERS

COMPLETE SYSTEM WITH DELUXE CASE AND KEYBOARD

$2063

486-25 130MB HARD DRIVE SVGA SYSTEM

- 486-25MHZ CPU
- 4MB RAM
- 130MB MAXTOR HARD DRIVE
- VIEWSONIC SVGA MONITOR
- SVGA CARD
- 1.2 OR 1.44MB FLOPPY DRIVE

COMPLETE SYSTEM WITH DELUXE CASE AND KEYBOARD

$1289

386SX-25 80MB HARD DRIVE VGA SYSTEM

- 386SX-25MHZ CPU
- 1MB RAM
- 80MB MAXTOR HARD DRIVE
- VGA MONO MONITOR
- 1.2 OR 1.44MB FLOPPY DRIVE

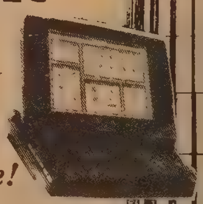
COMPLETE SYSTEM WITH DELUXE CASE AND KEYBOARD

$789

BCC NOTEBOOKS

AVANTI 486 SLC

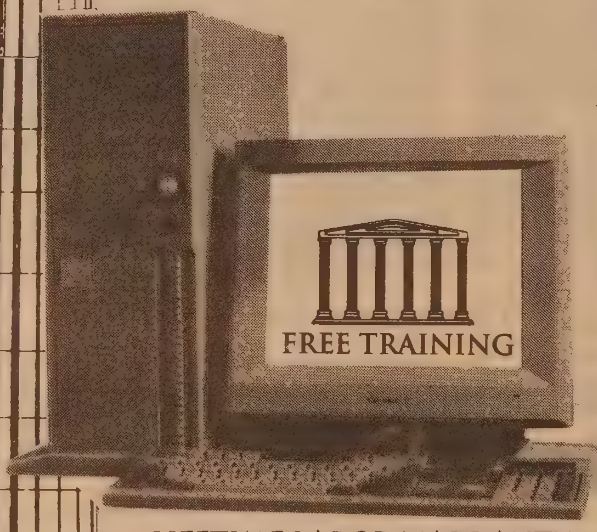
- 486SLC/25 MHZ PROCESSOR
- 80MB HARD DRIVE
- DOS
- HIGH CONTRAST 10" DISPLAY



$1795

Color Model Available!

$2295



VIEWSONIC MONITORS

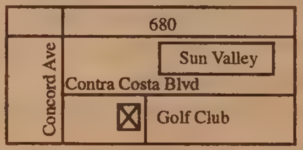
VIEWSONIC 1	$240
VIEWSONIC 4	305
VIEWSONIC 6	355
VIEWSONIC 5E	410
VIEWSONIC 6FS	595
VIEWSONIC V7	995
MAG17F	1140
VIEWSONIC V8	1580
VIEWSONIC 15	665
17	1195
20	1840

VIDEO GRAPHICS

ALLCUMOS 256K	$34
TRIDENT 9000	45
TRIDENT 8900	65
DIAMOND SPEEDSTAR 24X	169
DIAMOND SPEEDSTAR 24	149
ORCHID PRO IIS	140
DIAMOND STEALTH	179
FAHRENHEIT 1280	179
ORCHID P9000	345
DIAMOND VIPER	395

PERSONALIZE SERVICE
WITH CUSTOM
CONFIGURATION

LANtastic Authorized Dealer



LIFETIME LABOR WARRANTY PERSONALIZED SERVICE

R-COMPUTER

SERVING YOU FOR 8 YEARS

(510) 798-4884

30 GOLF CLUB ROAD, PLEASANT HILL, CA 94523

PRICES SUBJECT TO CHANGE W/O NOTICE.

THE INTEL INSIDE LOGO IS A REGISTERED TRADEMARK OF INTEL CORPORATION

LANtastic by ARTISOFT

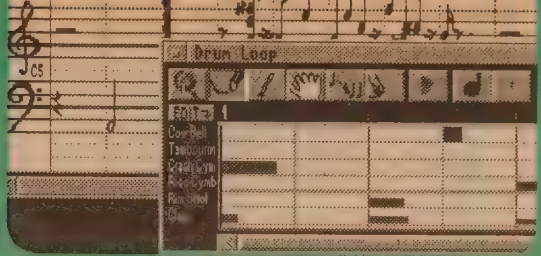
LAN TIMES READERS CHOICE 1992

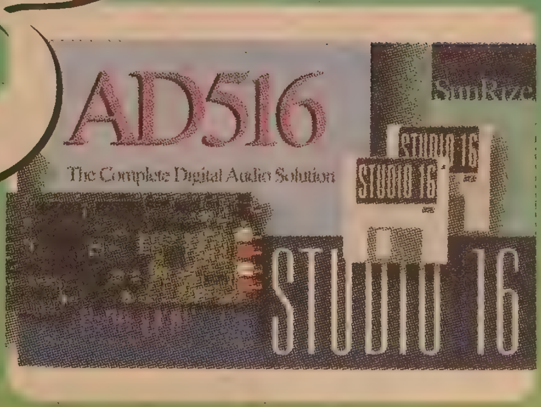
LAN MAGAZINE 1992 PRODUCTS OF THE YEAR

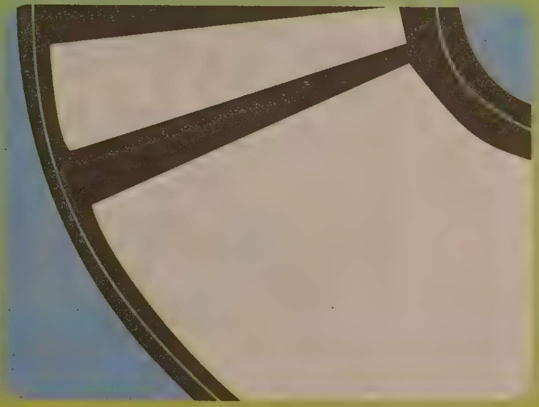
PC MAGAZINE EDITORS' CHOICE April 14 1992 LANtastic Version 4.1

Multi Media & beyond

Sound on the Amiga; multimedia in performance art; game developers beat limitations of CD-ROM; artware for Mac.


Drum Loop
C5

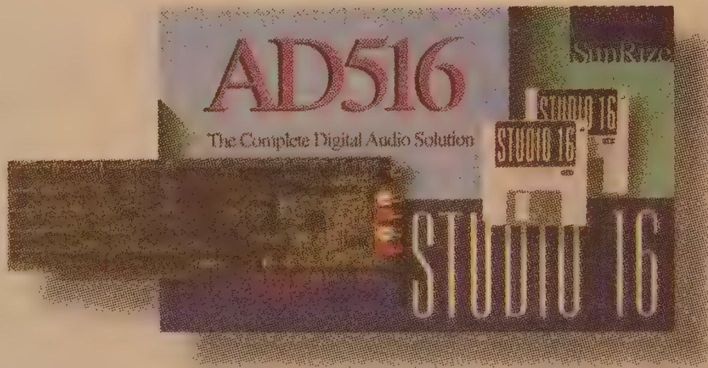

AD516
The Complete Digital Audio Solution
SunRize
STUDIO 16
STUDIO 16
STUDIO 16



Multi & Media beyond

The Amiga Recording Studio

The AD516 and Bars&Pipes Professional 2.0



BY DOUGLAS J. NAKAKIHARA

Good news for the sound studio on a budget—SunRize Industries has released the AD516, a 16-bit digital sound board for the Amiga.

Though its $1,495 price tag may seem high, the board's performance eclipses anything available on the Amiga or competing PC platforms in that price range. Other products may boast 16-bit sound, but few feature direct-to-disk recording—essential for working with long 16-bit sound samples because of their tremendous size—and you'll be hard pressed to find one that can handle eight tracks of sound.

The bundled Studio 16 program operates like a multitrack tape recorder, so it's very simple to use. As with its conventional counterpart, you can listen to some tracks as you record on others. Simulated analog and digital level meters can monitor both input and output levels.

The eight-track limitation applies only to the number of sound samples that can be played at the same time; the total number of samples you can work with is limited only by your storage space! Since sound is manipulated entirely in the digital domain, merging (aka "bouncing") tracks together produces no degradation in sound quality. So when you've reached the maximum number of playable tracks on the AD516, merge them all down to two stereo tracks and fill the unused tracks up again. The only thing you lose is the ability to manipulate the merged tracks individually. Unless you delete the source sample files, they can still be used at a later time.

Other reviews of the AD516 have chiefly

Copyright © 1993 by Douglas J. Nakakihara. All rights reserved.

Royalty Free CD-ROMs

Videos
Stills
Music

VIDEOS WITH MUSIC

Four CD-ROMs packed with hundreds of professionally shot videos and orchestrated music. All clips come bundled with Aldus Fetch —the powerful multimedia cataloging, browsing, and retrieval software. Each video and music CD-ROM covers a different popular topic. AMERICA IN MOTION features videos of the American Dream including events, holidays, places and landmarks, with music ranging from Ragtime to Rock 'n Roll. BUSINESS IN MOTION contains great videos of workers of every kind making a difference in manufacturing, agriculture, aerospace and construction. This CD also includes popular business themes perfect for any presentation. NATURE IN MOTION contains videos of the plant and animal kingdoms combined with classical orchestrated music. SPACE IN MOTION has the best U.S. & Soviet videos and NASA animations, along with music. Best of all Jasmine's CD-ROMs of clip media can be used royalty free in any computer application you create.

VIDEOS WITH TEXT

FAMOUS FACES: Meet the 100 most prominent people of the 20th century. The inventors, politicians, celebrities, artists, business and religious leaders who made history. Combined with the exceptional historic footage are educational biographies and famous quotes. This interactive CD-ROM includes Churchill, Sadat, Ghandi, Disney, Ford, Edison, Einstein, Thorpe, Hirohito, De Gaulle, Wright Brothers, Ruth, Houdini, King, Chaplin, and so many more. As with all Jasmine titles, the clips can be used royalty-free in any computer application.

FAMOUS PLACES: Explore the wonders of the modern world. Discover the Earth's greatest landmarks from the grandeur of the Great Pyramids of Egypt, through the romantic canals of Venice, to the Great Wall of China and beyond. Breathtaking videos complete with fascinating histories. Experience the Colosseum, Jerusalem, Hollywood, the Vatican, Red Square, the Eiffel Tower, Sears Tower, Taj Mahal, Australia, New York City, Tokyo, Big Ben, the Acropolis, and much more. All clips can be used royalty-free in any computer application you create.

STILLS WITH MUSIC

Our photographers have canvassed the globe to capture the world's most exotic animals, fascinating people, and spectacular settings. From far off locations to close-up textures, these three CD-ROMs encompass the most diverse collection of stills ever gathered. WILDERNESS STILLS featuring extraordinary photos of nature and animals; SCENIC STILLS with striking photographic backgrounds, textures, and famous locations; and WORKING STILLS with stunning photos of business and industry. All include over 300 color photos, magnificent music and Conversion Artist Software for changing TIFFs into other formats. Also included is Aldus Fetch — the powerful multimedia cataloging, browsing and retrieval software. And all this content can be used royalty-free in any computer application you create.

america
in motion
VIDEOS OF THE AMERICAN DREAM
$99.95 EACH
business
in motion
PC & MAC

famous
faces
famous
places
$99.95 EACH
PC & MAC

wilderness
stills
scenic
stills
$59.95 EACH
PC & MAC

Interested Dealers Contact: Ingram Micro or Software Resources

indeo™
INTEL VIDEO TECHNOLOGY

VISA

PC
Multimedia PC

JASMINE MULTIMEDIA PUBLISHING

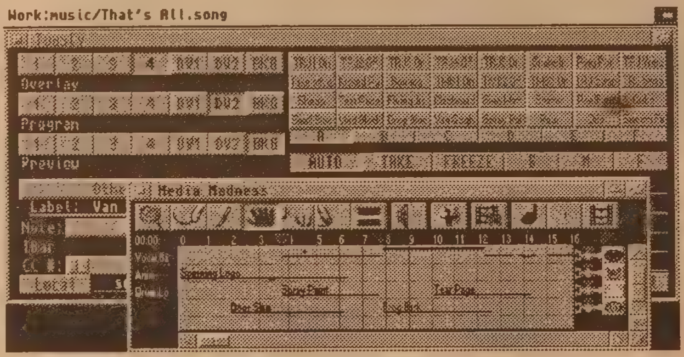
CALL NOW TO ORDER **1-800-798-7535** EXT. 1105 discussed its desktop video use. However, I wanted to test its ability to operate simply as a multitrack recorder, so I tried it out on a song I had composed in a music sequencer. The song used sounds from a Roland MT-32 via MIDI plus the Amiga's own internal 8-bit voices. By multitasking the sequencer program and Studio16, I was able to feed the MT-32 and Amiga audio output back into the stereo input jacks on the AD516! I don't believe this can be done on any other PC.

The resulting samples were indistinguishable from the original. Next I recorded a few additional tracks of synthesizer licks. I merged these down to a single track and added a couple tracks of vocals. I was in digital heaven, able to bounce track after track without any tape hiss! The result was a technical masterpiece—if only I could write a decent song. In any event, I proved it could be done.

LIMITATIONS

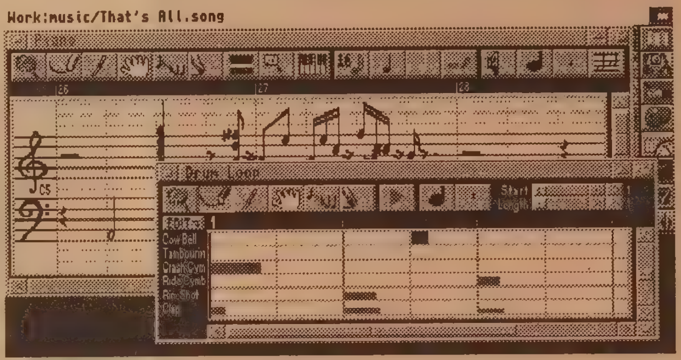
The biggest limitation in using the board as a multitrack recorder is that the board has only two input and two output channels (for stereo). Because of this, it is only possible to work externally with two tracks. Any effects (e.g., reverb) have to be added either to the source input while recording or to the mixed-down output.

In a normal recording studio situation, many tracks are recorded "dry" with effects added independently to each track on playback. This allows effects to be adjusted after the fact. For the home studio, this is a tolerable limitation, but requires a little preplanning. Fortunately, the AD516 has a full suite of waveform editing tools. For example, delay-based effects, like reverb, flanging, doubling, etc., can be added to a track.



Another limitation is that there are no provisions for "punching in" while recording. So if you want to add something just to the chorus of a song, you have to start recording from the beginning of the song; you can't just jump to the chorus and start recording from there. A possible solution may be to cut and paste pieces of a song together, using the waveform editor or triggering parts with SMPTE.

Though the board supports up to eight tracks, the number of tracks you can simultaneously record or play back depends mostly on your Amiga's processor speed, your hard disk data transfer rate, and the desired sample rate. On a stock Amiga 3000, I was able to do six tracks at 44.1 KHz, the standard rate for CDs. Lowering the sample rate will increase the number of possible tracks. (Note that removable media drives may seem to be ideal until you realize their slowness will impact the AD516's performance.) The documentation indicates that the AD516 will play four tracks on an unaccelerated Amiga.



In any event, be prepared to buy a huge hard drive. A single CD-quality sample can use 5 MB of disk space per minute at a sampling rate of 44.1 KHz. Multiply that by the number of tracks and the length of the song, and a 200MB hard drive can seem puny!

Of course, the AD516 was not designed to replace a multitrack recorder, so the above limitations are understandable. However, it can certainly perform impressively in a home studio situation. The AD516 would, at least, be a welcome addition to any conventional recording studio.

DESKTOP VIDEO

The AD516's most likely use is for adding sound to video.

With respect to video, you'll often hear the term SMPTE (pronounced SIMP TEE). Basically, SMPTE is a standardized method to keep track of time or position on tape. It is used to synchronize events, usually audio and video. SMPTE is accurate to the frame—that is, events such as a sound effect can be triggered to start at any specific frame in a video. The SMPTE code format is Hours:Minutes:Seconds:Frame. Any of the various frame rate standards (24 fps, 30 fps, 30 fps drop frame, etc.) can be used.

SMPTE is usually implemented as an audio track. You can actually hear this track, but it sounds like static. This static can be translated by your computer into linear information, much like a tape counter on a VCR. The SMPTE code is usually recorded onto an audio track on the tape containing the video and acts as a position reference for anything that understands SMPTE. This is called "striping" a tape.

SunRize sells a software product called SMPTEout that generates the SMPTE audio track right out of the Amiga audio port, so you no longer have to purchase separate hardware to generate the SMPTE track.

Let's say you've put together a nice video using NewTek's VideoToaster and the tape has been striped. You've also got all of the background music, voiceovers, and sound effects all sampled. You also know the exact frames where each sound should start.

From this point, all you have to do is set up a Cue List in Studio 16, where you enter the trigger point in SMPTE time code for each sample. By connecting the audio out from the VCR to the AD516 SMPTE input jack, your Amiga will "listen" to the SMPTE audio track and trigger all of the sound samples based on the information in the Cue List. The AD516 can also be controlled using ARexx.

I know I'm making this sound way too easy, but essentially, this is how it works.

BARS&PIPES

Blue Ribbon SoundWorks has released a powerful music sequencer, Bars&Pipes Professional 2.0 (B&PPro), that works superbly with the AD516. At its core, B&PPro is a full-featured music sequencer. Notes are usually input using a MIDI keyboard, but the computer keyboard and mouse can also be used. Generally, each track's output is sent to a MIDI device or the AD516.

B&PPro also supports SMPTE, so instead of using Studio16's Cue List, you can define the sample trigger points using B&PPro. B&PPro's input interface is time-line-based,

RESOURCES

AD516, $1,495
AD1012, $595
SMPTEout, $249
SunRize Industries, Inc.
2959 S. Winchester
Blvd., Ste. 204
Campbell, CA 95008
(408)374-4962

Bars & Pipes
Professional 2.0,
$429
Internal Sounds Kit,
$59.95
Blue Ribbon
SoundWorks, Ltd.
1605 Chantilly Dr.,
Ste. 200
Atlanta, GA 30324
(404)315-0212

Multimedia

PENTIUM
By ALR
64BIT BUS, 60MHZ, 3 LOCAL BUS SLOTS
8M RAM, DESKTOP CASE, KEYBOARD
COMING SOON $2495

Trakker
Portable 120mb Tape Backup
connect to parallel port
By Colorado
$359

486DX2-66
Vesa Local Bus
- ISA Motherboard and CPU
- 256k Cache
- 2 Vesa Local bus slot
$659

Microsoft **ENCARTA**
CD_ROM Multimedia Encyclopedia
$259

PROPHONE
CDROM PHONE BOOK
7 Disk Set
70 million residential
10 million business
$119

CENTRAL POINT
PC TOOLS
FOR WINDOWS
$119

WatchIT!TV
by New Media Graphics
TV in a window. Includes
TV tuner plus image capture
New $299

SupraFAXModem
14,400 bps Send/Receive
Fax/Modem V.32bis V.42bis
External No Software
$229

SupraFAXModem
14,400 bps Send/Receive
Fax/Modem V.32bis V.42bis
Internal with Software
$179

ALTEC LANSING
ACS300 Stereo Speakers
with seperate SubWoofer
$279

Smart Label Printer Pro
By Seiko
$229

7th Guest CDROM
Interactive Movie
$49 95

FUSION CD 16
COMPUTER CD SOUND SYSTEM
By Media Vision
CD Drive, Sound Board,
Speakers, Comptons Family
Enclopedia and more.
$499

PRO 16 MULTIMEDIA SYSTEM
CD-ROM With 16 bit Sound BY Media Vision
$869

PRO MOVIE SPECTRUM
By Media Vision
Includes Video For Windows 30 frames/Sec.
$299

PRO AUDIO STUDIO 16
VOICE RECOGNITION
Plus CDROM Interface, 16 Bit Text to Speech
$229

ScanMaker II
By Microtek
1200 DPI, 16 Million Color
Full page scanner
$869

Thrustmaster Flight Control
Also Weapons Control
Flight Control Pro and
Rudder Pedals
$79

VIDEO BLASTER
BY CREATIVE LABS
Full motion video in windows
$349

SOUND BLASTER PRO 16BIT
New 16 Bit sound card
$229

DISCOVERY CD 8
By CREATIVE LABS
Internal CD-ROM 390ms 64K buffer
Stereo Speakers
Sound Blaster Pro 8bit
Toolworks MM Encyclopedia
$399

SOUND BLASTER PRO DELUXE
With CD-ROM Interface
$129

VideoSpigot For Windows
With Video For Windows 30 Frames/sec
24bit Capture, with Asymetrix : Toolbook,
Mediablitz and Make Your Point
$429

Corel Draw 3
New low price
Disk and CDROM
$139

THE **MIRACLE**
Piano teaching system
$319

COVOX
Voice Recognition
1000 Word Vocabulary
$149

Toshiba 3401
Internal CD-ROM 200ms, 256K buffer
330 kb transfer, Photo CD compatible
Controller 60 additional
$475

Mitsumi CD-ROM
Drive plus Controller
360ms Access Time
$209

Pixar **Typestry**
Turn Truetype and Type 1 into 3D objects
with shadows and Textures. Make 3D Movies.
This program is incredable.
$159

TeleVeyes
VGA to TV
External box converts VGA
signal to NTSC send to TV
or VCR. 640 x 480 256color
$209

Plus
Books and Magazines

SuperScan 20"
HITACHI 20 " Color Monitor
1280 x 1024 Non interlaced
$1299

Number Nine
9GXE Level 12
Vesa Local Bus
Super Fast 24bit Video
$699

DIAMOND VIPER
Fast Local Bus Video
$419

10,000
Products instock or available next
day from local wharehouses.
We special order every day
Call

Service
We service computers
and Software
In store or On site
Call

Microsoft Access	$89 95
Fractal Painter	$259
Logitec Soundman 16	$169
Turtle Tools	$65
Scanman Color	$579
Pro Audio Spectrum	$165
Labtec Speaker Pair	$19 95
Strike Comander	$55
CPU Fan	$19 95
Photoshop Windows	$549
Adaptec 1542C	$275
Strike Comander	$55
PC Tools Windows	$119
Mustek OCR Scanner	$99
CD Speedway	$59

CD-ROM Software

CD-ROM

Mayo Clinic Family Healt Book	69.95
Sherlock Holmes Consulting 3	49.95
Multimedia Beethoven	49.95
Space Adventure	69.95
Learn to Speak Spanish	64.95
Enhanced Battle Chess	49.95
Comptons Interactive Encycl	239.00
Future Wars	49.95
Street Atlas USA, Delorme	99.95
Global Explorer by Delorme	99.95
Grolier Multimedia Encyclo	229.00
Compton Family Encycl.	159.00

Motherboards

CLONE MOTHERBOARDS W/CPU	
- 386SX -33 Motherboard	99
- 386DX-40 128 C	169
- 486DX-33 64C	410
- 486DX-50 128C ISA + Local Bus	619
- 486DX2/66 256C ISA + Local Bus	659
VIDEO CARDS	
- Diamond Viper 2mb Local bus	419
- CARDEX 24BIT Local Bus	119
- Tridend 8900CL 24bit, 1280x1024	69
- Boca Super X 24bit	149

Software

Plus Much More

Word for Windows	299.00
Excel for Windows	299.00
Wordperfect for Windows	269.00
Foxpro	339.00
Corel Draw	299.00
Micrographix	359.00
Designer	199.00
Intellidraw	74.95
SuperStor Pro	59.95
File Runner	259.00
Fractal Painter Windows	
Plus much more	

Hardware

Number Nine GXE lev 12 ISA	629.00
Dexxa Mouse	19.95
Color Monitor 1024 x 768 .28dot	266.00
Labtec SS700 Speaker pair	29.95
Thrustmaster Weapons Control	89.00
Future Doman 850 SCSI Control	49.95
Canon BJ20 Inkjet	399.00
Canon BJ200 Inkjet	349.00
Thumbelina mouse	69.95
Mustek PrinScan 105 Laptop scan.	179.00
Colorado 120 mb backup	225.00
Plus much more ..	39.95

Networking

WINDOWS For WORKGROUPS	
- 2 user starter kit	589.00
- 2 user add on startert kit	389 00
- 1 user add on kit	299 00
- 1 user software (req. win.)	69.00
- 1 user with windows	159 00
LANTASTIC	
- Lantastic Noderunner 2000/C	179.00
- Lantastic Noderunner 2000/T	185.00
- Lantastic Z	89.00
- Lantastic AI	75 00
EAGLE NE2000 16bit Net card	159.95

Not responsible for Typographical Errors

Prices subject to change without notice

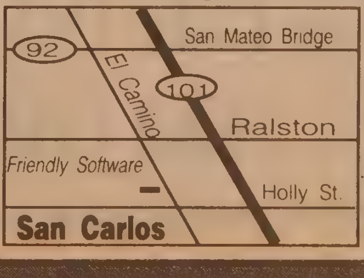
Friendly Software Store

11 years

376 El Camino Real, San Carlos

415-593-8275

Monday thru Friday . 10:00 to 6:30
Saturday .... 10:00 to 5:00
Sunday .... 12:00 to 5:00



Now View Photographs On Your Computer.

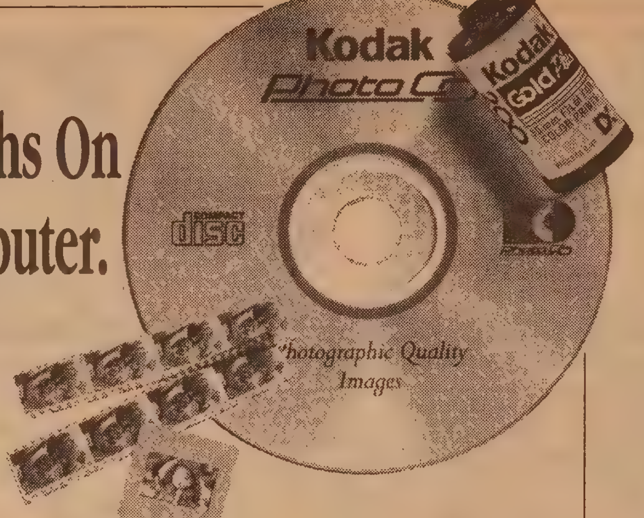
Kodak Photo CD Transfer Service
Now in San Francisco!

If you ever had to scan photos for use in your documents, presentations or animations, you'll love Kodak's Photo CD.
You get the quality and resolution you'd get from a professional scanner costing thousands of dollars! Have your 35mm negatives or slides transferred into a Photo CD. Each CD stores up to 100 images.
Use the CD with your CD ROM drive on your computer to work with high quality images in your favorite photo editing program in applications as varied as Re-Touching, Composition, Color Pre-Press or Ad Layout. It's easy to find the pictures you want, because we include an index print of each picture on the Photo CD Disc.

Photo CD provides a compact and cost effective means of storing photographic-resolution digitized images. It also eliminates albums, shoe boxes and projectors, and makes the process of cataloging, organizing and watching hundreds of pictures as easy as watching TV.
Also, ask about our Photo CD players which include remote controls with advanced imaging handling capabilities like panning, autoplay and custom sequencing. Use it for your audio CD too!

Your Pictures Have Never Been So Powerful.

ITS•CD IMAGE TRANSFER SYSTEM
Tel: 415.664.1588
Fax: 415.731.3252
1588 Noriega Street at 23rd Ave, San Francisco, CA.



$ CASH PAID $

IBM NEC
TOSHIBA
HEWLETT PACKARD COMPAQ

$ WE PAY TOP DOLLAR $

T-TEK (510) 733-6718
FAX (510) 733-5166

so you may find it easier to work with.

Basically, AD516 samples are assigned to notes. When a note is played, the corresponding sample will be played through the AD516. (These samples do not behave like normal instruments. That is, the pitch of an AD516 sample cannot be changed via B&PPro. You are limited to playing the sound at its recorded sample rate. This is much different from the typical "keyboard sampler" sold in music stores, where a sampled sound can be varied in pitch and used as an instrument. I was told by SunRize that it is theoretically possible to make the AD516 work like a keyboard sampler, but it would involve resampling the sound on-the-fly, and keep you from using eight tracks at once.)

Using B&PPro instead of the Cue List is also more versatile since you can simultaneously control MIDI instruments and other events. B&PPro also has a feature called Time Line Scoring, where entire songs can be triggered using SMPTE timecodes.

SunRize sells a software product called SMPTEout that generates the SMPTE audio track right out of the Amiga audio port, so you no longer have to purchase separate hardware to generate the SMPTE track.

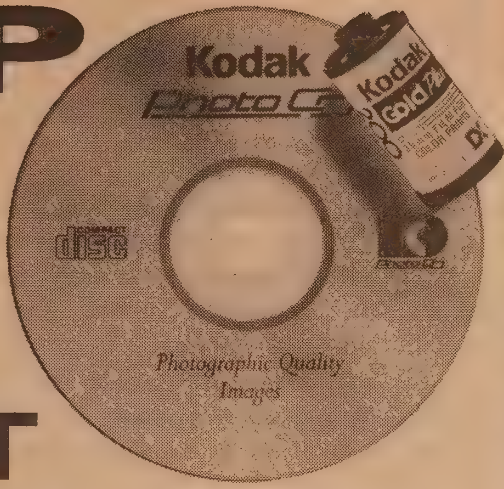
Despite its comic book-like interface, B&PPro is an extremely powerful and complex sequencer. I strongly suggest that you set aside a large block of time and go through the nearly four hundred pages in the manual. It took me a while to get the hang of it, but eventually it seemed surprisingly intuitive.

Essentially, music flows from left to right through a series of pipelines. The input pipeline holds the tools that process the music before they reach the sequencer area. The sequencer area holds the actual note information. The output pipeline holds the tools that further process the music before it is sent out, usually to a MIDI device.

Many tools are available. Some work only on the input pipeline, some only work on the output, while others work on both. Multiple tools can be combined into a custom Tool. Novice musicians will like the tools that automatically add the proper accompaniment to a song, once certain song parameters are set. These include tools for automatic counter melody, harmony, and chords. Another tool prevents out-of-key notes from being processed. You can even write ARexx scripts that generate MIDI events.

The pattern tool allows you to play the same short segment of music over and over, a set number of times. You can then add and remove notes on-the-fly. This allows you to build a music segment piecemeal. Multiple

PHOTO DRIVE-UP PHOTO CD IMAGING SERVICES AVAILABLE AT ALL 30 LOCATIONS!!



We offer the latest technology for storing and viewing your 35MM color or black and white negatives or color slides. Once an image has been digitized and scanned on the EASTMAN KODAK PHOTO CD, the original can be stored separately. Images on the PHOTO CD can be transmitted electronically without fear of loss or damage to the original. PHOTO CD images can be viewed on a TV or Computer Monitor. Manipulate images with graphics software to enhance overhead vuegraphs and slide presentations, press releases, sales brochures and newsletters.

PHOTO CD

FILM SIZE	UP TO 12 EXP	UP TO 24 EXP	UP TO 36 EXP
WITH ONE SET PRINTS 3.5" x 5"	$\$12^{95}$	$\$23^{95}$	$\$33^{95}$
WITH ONE SET PRINTS 4" x 6"	$\$13^{95}$	$\$24^{95}$	$\$35^{95}$
WITHOUT PRINTS CD ONLY	$\$9^{95}$	$\$16^{95}$	$\$23^{95}$

SLIDE PROCESSING & IMAGE TRANSFER

24 EXPOSURES	$\$18^{95}$
36 EXPOSURES	$\$27^{95}$

IMAGE TRANSFER FROM SLIDE OR NEGATIVE TO YOUR PHOTO CD DISC

10-24 IMAGES	$\$1^{39}$ PER IMAGE
25-99 IMAGES	$\$1^{19}$ PER IMAGE
100+ IMAGES	$\$1^{09}$ PER IMAGE
Minimum Order Is 10 Images	$\$13^{90}$

APPEND ORDER SERVICE CHARGE FOR ADDING TO CD	$\$2^{00}$
DISC DUPLICATION UP TO 49 IMAGES	$\$39^{00}$
50+ IMAGES	$\$79^{00}$
CUSTOM ALBUM KIT	$\$5^{00}$

FOR FURTHER INFORMATION CALL PHOTO DRIVE-UP CORPORATE OFFICE • (408) 371-7802

30 LOCATIONS WITH FAST FRIENDLY SERVICE!

SAN JOSE	
2505 Berryessa Rd at Capitol	(408) 258-8250
Blossom Hill at Kooser	(408) 448-7550
Lincoln at Willow	(408) 293-7341
Meridian at Hamilton	(408) 267-5050
Piedmont at Sierra	(408) 258-8630
804 S. Winchester near Moorpark	(408) 241-2171
Silver Creek Plaza by Safeway	(408) 270-1133
Snell at Blossom Hill	(408) 578-7505
1604 Story Rd. at Knox	(408) 259-1750
1476 S. White Rd south of Story	(408) 258-8732
1569 Saratoga Ave. by Saratoga Lanes	(408) 252-2922
Santa Teresa at Cottle by Lucky's	(408) 578-4437
5222 Monterey Plaza Rd	(408) 224-7030
37 S. First St	(408) 298-2255
1900 Camden Ave at Leigh	(408) 559-0400
Super Copy Center	
1900 Camden Ave at Leigh	(408) 371-2222
11th Street Photo & Copy	
Corner of 11th & San Carlos	(408) 287-1111
BERKELEY	
Telegraph at Ashby	(510) 845-4445
CUPERTINO	
1375 Sunnyvale/Saratoga Rd	(408) 725-8180
LOS ALTOS	
999 Fremont Ave at Foothill	(415) 949-1311
398 Main St.	(415) 948-5628
LOS GATOS	
Blossom Hill at Los Gatos Bl	(408) 356-4161
349 N. Santa Cruz Blvd	(408) 395-9228
SUNNYVALE	
El Camino at Hollenback	(408) 733-5865
FREMONT	
Brookvale Center by Lucky's	(510) 791-8996
HAYWARD	
Hesperian at Tennyson	(510) 785-2612
MILPITAS	
391 Jacklin Rd by Nob Hill	(408) 263-6471
MOUNTAIN VIEW	
El Camino At Escuela	(408) 968-5666
PALO ALTO	
El Camino at Portage	(415) 493-5553
SANTA CLARA	
El Camino at Lawrence	(408) 249-0952

MasterCard VISA AMERICAN EXPRESS DISCOVER

PHOTO DRIVE-UP SPECIAL COUPONS

XEROX COPIES
NO LIMIT
(8 1/2" X 11")
20 WT BOND
2 1/2 ¢
Expires July 1, 1993

COLOR COPIES
CANON
COLOR LASER
(8 1/2" X 11")
99¢
Expires July 1, 1993

VIDEO MOVIE RENTALS
1 MOVIE, 1 DAY
99¢
Expires July 1, 1993

PHOTO DRIVE-UP FILM SALE
12 EXP ....99¢ 36 EXP .. $\$1^{99}$
100 ASA LIMIT 10 ROLLS
Expires July 1, 1993

COLOR FILM PRINTING AND DEVELOPING SPECIAL
3" OR 4" PRINTS-NO LIMIT
12 EXP .... $\$2^{99}$ 24 EXP ... $\$4^{99}$
36 EXP .... $\$6^{99}$
Expires July 1, 1993

COKE
DIET COKE
SPRITE
2 LITERS
99¢
Expires July 1, 1993

VIDEO BLANK TAPE SALE
BASF T-120
OR GOLDSTAR
LIMIT 20
$\$1^{99}$
Expires July 1, 1993

VIVITAR 35 MM SINGLE USE CAMERA
24 EXP
$\$4^{99}$
Expires July 1, 1993

KODAK GOLD PLUS
24 EXP 200 ASA...... $\$3^{99}$
24 EXP 100 ASA...... $\$3^{49}$
Expires July 1, 1993

PASSPORT PHOTOS
SET OF 2,
5 MINUTE
SERVICE
$\$5^{95}$
Expires July 1, 1993

30 CONVENIENT LOCATIONS OFFERING 1-HOUR SERVICE & GUARANTEED QUALITY!

patterns can be chained in one track to perform multiple sections of music. This feature is very good for sequencing percussion, which is normally very repetitive.

Some of the tools are somewhat obscure, but fun nonetheless. These include tools like flip, which flips the notes around a center note, and reverse, which reverses all of the notes in a range. Use the inverter tool to squeeze all notes into a preset range.

I loved the fact that the display can be set to standard music notation, piano roll display, or a hybrid of both. There are even provisions for adding lyrics and music printing.

A great little editing feature is song construction. Using a grid representing the tracks of music, you can insert, delete, and move any block of measures. This gives you a quick way to arrange a song without having to edit each track individually.

The optional Internal Sounds Kit, which I highly recommend, will allow you to use standard IFF sound files as instruments. Though the sounds would only be 8-bit, the fidelity is still reasonably good. In fact, a few years ago, KPWR Power 106, a major radio station in Los Angeles, played a song I did which only used my Amiga's internal sound channels. I'm sure they thought I used lots of expensive equipment.

In any event, be prepared to buy a huge hard drive. A single CD-quality sample can use 5 MB of disk space per minute at a sampling rate of 44.1 KHz. Multiply that by the number of tracks and the length of the song, and a 200MB hard drive can seem puny!

Media Madness is an interesting twist to B&PPro. These specialized tools allow control of Video Toaster transitions, IFF images, animations, and sound samples, the GVP IV24 and genlock, the Panasonic optical disk, MediaPhile, Scala, the AD516, SuperGen 2000, and the Amiga narrator device. These multimedia sequences can be saved and played back using a freely distributable player program.

All in all, the AD516-B&PPro duo does practically everything except write the music for you—and it almost does that! If the AD516 is too pricey for you, SunRize offers a four-track 12-bit mono version called the AD1012. (Special thanks to Dean Tucker at SunRize and Allison Landry at Blue Ribbon SoundWorks for their help in getting me their products for review.) ■

Multimedia, Video and Animation Products for Macintosh and Amiga

June Calendar

3rd Dimension SIG
1st & 3rd Mondays at 6:30
3D Graphics and Animation SIG
☞3D Art show 2nd Saturdays!

MMUF Business SIG
2nd Mondays at 6:30
MacroMedia User's Forum group — Strategies and techniques for running a successful multimedia business

MacroMedia Seminars
4th Mondays from 4 and 6PM
Representatives from MacroMedia show how professionals use their products

Computer Flea Market
Every Saturday 12-4
Consignment items welcome. All platforms. Hardware, software, video, peripherals. Bargains Galore!

It's Happening at Media Tree!

Announcing...
Video Toaster 4000
- 32 bit '040 platform!
- Broadcast quality!
- 24 bit graphics!
- Scalable PostScript Fonts CG!
- Real-time 3D animations!
- Free demo tapes!

June Sales

MacroMedia Products
☞ Director 3.1 - $895
☞ MacroModel 1.5 - $895
☞ Windows Player 1.2 - $799
Video Toolkit — Cuts-only editing for your Mac. $275!
Emplant — Incredible color MacII emulator for Amiga. $395!

Service
S/VHS A/B-Roll Edit Suite
Multimedia Production
QuickTime video grabs
Mac & Amiga 24-bit scanning
Photo-quality dye-sub printing
Single-frame recording
Authorized Amiga repair
Macintosh and Video Toaster workstation rentals

MEDIA TREE
San Francisco's Multimedia Center
510 1/2 Frederick St. at Stanyan (near Haight St.)
Public Parking available behind store $1/Hour • 1 block from the N-Judah Car! & Stanyan stop

Call for Free Video!
(415)664-0484
Fax: 664-0485
Edit Suite: 664-1457

Positive Solution Computer, Inc.

DBA PS Computer

Multi-Media On Display

We Will Repair or Upgrade Your System!

VISA COD MasterCard

486 VESA Local Bus 256K Cache System

- 4MB RAM (70ns) Expandable to 32MB
- 245MB Maxtor (15ms) Hard Drive
- 1.2MB 5.25" and 1.44MB 3.5" Floppy Drives
- 32 bits IDE VESA LB Controller
- 2 Serial, 1 Parallel, and 1 Game Ports
- 32 bits Cirrus Logic VESA Local Bus SVGA Card w/ 1MB Memory
- Mini tower or Desktop Case with Power Supply
- 101 Enhanced Keyboard
- 3-Button High Quality Mouse
- 15" View Magic 1280x1024 SVGA Non-Interlaced, Digital Control Monitor
- Heat Sink for CPU

486DX2-66MHz $1935

486DX-33MHz $1715

486DX-50MHz 256K Cache System

$1515

- 4MB RAM (70ns) Expandable to 32MB
- 245MB Maxtor (15ms) Hard Disk
- 1.2MB 5.25" and 1.44MB 3.5" Floppy Drives
- 1:1 Interleave 2HD/2FD IDE Controller
- 2 Serial, 1 Parallel, and 1 Game Ports
- Real Time Clock w/Battery Backup
- Mini tower or Desktop Case with Power Supply
- 101 Enhanced Keyboard
- 1MB Trident SVGA Card
- Proton 14" (non-interlaced) 1280 x 1024, .28 dot SVGA monitor
- 3-Button High Quality Mouse
- Heat Sink for CPU

486DX-33MHz 128K Cache System

$1245

- 4MB RAM (70ns) Expandable to 32MB
- 120MB Conner HD
- 1.2MB 5.25" and 1.44MB 3.5" Floppy Drives
- 1:1 Interleave 2HD/2FD IDE Controller
- 2 Serial, 1 Parallel, and 1 Game Ports
- Real Time Clock w/Battery Backup
- Mini tower or Desktop Case with Power Supply
- 101 Enhanced Keyboard
- 1MB Trident SVGA Card
- Arche 14" 1024x768, .28 dot SVGA monitor
- 3-Button High Quality Mouse
- Heat Sink for CPU w/486

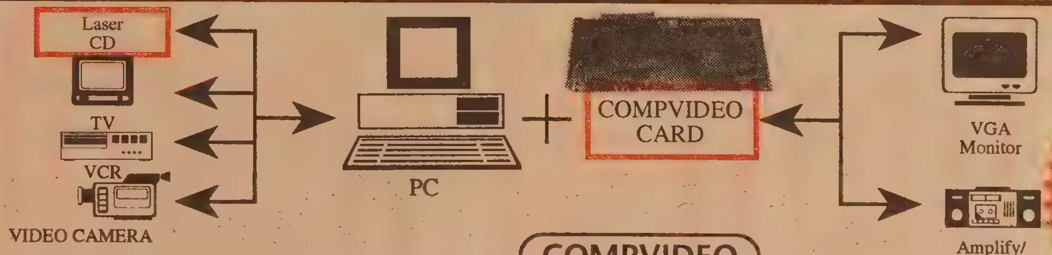
386DX-40MHz/128K Cache $980

386SX-33MHz

$750

- 2MB RAM (70ns)
- Expandable to 16MB
- 40MB Hard Disk
- IDE Controller
- 1.2MB 5.25" and 1.44MB 3.5" FDD
- 2 Serial, 1 Parallel, and 1 Game Ports
- Desktop w/ Power Supply
- 101 Enhanced Keyboard
- VGA Monitor w/VGA Card
- 3-Button High Quality Mouse

Many Different CD-ROM Titles In Stock



BIG NEWS for C&T PC Video Users

MULTIMEDIA PRODUCT FAMILY

Compvideo 3.0 Image Capture board

With on-screen sound control, view from full screen to any size of Windows while you are running other Windows programs at the same time. Up to 3 video sources at one time. You can capture 24 bits of true color picture for live video. Freeze, zoom, grab, color adjust, edit (cut, paste, rotate, ...).

COMPVIDEO 3.0 $400

Saves to tiff, tga, bmp, mmp format. Supports 640x480 64K High Color VGA Mode with feature connector. J-PEG compression, Image database & processing. Works with Microsoft Video Interleaved (AVI) driver for image compression during capture.

COMPVIDEO 1.0 $190 Image Viewing Board TV to VGA Converter

COMPVIDEO 2.0 $280 Convert Your Computer Presentation Or Animation To Display On TV Or VCR

HUGE SELECTION OF MULTI-MEDIA PRODUCTS & CD ROM TITLES

POWER BLASTER

FM Sound Card

- Full Sound Blaster Compatible

$58

POWER BLASTER Jr.

FM Sound Card

- 11 Voice
- Sound Blaster & Windows 3.1 Compatible

$30

MM POWER GM

PCM

- MPU-40 (UART Mode)
- Windows 3.1
- GM/MT-32 Game
- Upgrade the sound of your Sound Blaster

$125

CD-ROM SONY 31A

$245

Mitsumi $195

AMPLIFIER STEREO COMPUTER SPEAKERS

$10

2 Watt $18

$60 50Watt

$100 75Watt

Sound Commander Pro 16 Bit Sound

- Adlib and Sound Blaster Compatible
- 20-Voice Full Stereo Synthesizer
- Free Dynamic Speaker
- CD-ROM Interface On Board

$99

Full Page Scanner

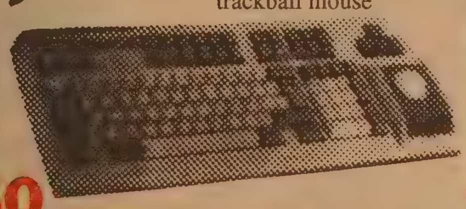
600dpi

$599

KeyCat

Keyboard

101 Enhanced Keyboard with built-in serial trackball mouse

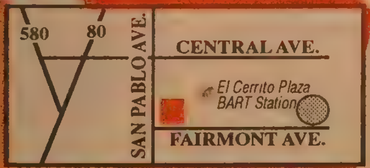


$60

SPECIALS

View Magic 15" 1280x1024 SVGA Non-Interlaced Flat Screen Digital Control Monitor	$500
120/250MB Colorado Tape Backup	155/205
9600 FAX Send 2400 Internal Modem	35
9600 FAX/2400 Modem	60
w/Bit FAX for Windows	65
Full Tower Case w/250 Watt Power Supply	99

9600 FAX/2400 Modem Pocket	115
14,400 FAX/14,400 Modem	180
Mini Tower w/200 Watt Power Supply	60
Medium Tower w/230 Watt Power Supply	80
Desktop Case w/200 Watt Power Supply	65
3-Button Mouse	9.50
Logitech Mouseman	49
Microsoft Mouse	50
Logitech Trackman	75



10032 San Pablo Ave.
El Cerrito, CA 94530
TEL. (510) 527-6908

OPEN 6 DAYS
Mon-Sat: 9:30am to 6pm
FAX (510) 527-3823

Resellers Only
Wholesale Club
Call in for wholesale price list
800-597-0222

You Can Count on Our Best Price and Qualified Service! • 7 Years Labor & 1 Year Parts Warranty!

Preview:

Digital World 93

CONFERENCE SCHEDULE
WEDNESDAY JUNE 23, 1993

Beverly Hilton Hotel
Beverly Hills
Conference: June 23-25, 1993
Saturday Seminar: June 26, 1993

If you're confused about multimedia or grappling with some of the problems the emerging technology poses, Seybold's Digital World conference is an invaluable resource. Bringing together professionals and analysts from the high-tech and entertainment industries, the sessions address issues ranging from emerging tools to intellectual property to the ever-popular "Who's paying for this anyway?"

For registration and other information, contact Seybold Seminars at 1-800-433-5200, fax (310) 457-8599.

9–10:30am
Opening Session I
John Sculley, CEO & Chairman, Apple Computer Inc.
Craig McCaw, CEO & Chairman, McCaw Cellular
Bob Carberry, President, Fireworks Partners, IBM Corp.
Moderator: *Jonathan Seybold*, Seybold Seminars

11am–12:30pm
Opening Session II
Richard Brown, Vice Chairman, Ameritech
Brian Roberts, President, COMCAST
Mitchell Kapor, Chairman of the Board, Electronic Frontier Foundation
Moderator: Jonathan Seybold, Seybold Seminars

2–3:30pm
Telecommunications Policy
Matt Miller, Vice President of Technology, General Instrument
Mitchell Kapor, Chairman of the Board, Electronic Frontier Foundation
Kenneth Thomson, Consultant
Michael E. Bloom, Director of Business Development, Kaleida Labs
Moderator: *Jonathan Seybold*, Seybold Seminars

4–5:30pm
PDAs: What Are They Good For?
Bill Warner, President, Wildfire Communications, Inc.
Rob Mechaley, Senior Vice President Technology Development, McCaw Cellular
Donna Dubinsky, President & CEO, Palm Computing
Barry Glick, President, GeoSystems
Moderator: *David Baron*, Seybold Seminars

(Dinner Break 5:30–7:30pm)

HASSLE FREE INSTALLATION. 1-2-3! BRING IN YOUR COMPUTER AND OUR TECHS WILL HELP YOU INSTALL THE CD-ROM DRIVE KIT FOR FREE! SEE BELOW

LOWEST PRICES ON CD TITLES!

WE WILL BEAT ANY ADVERTISED PRICE ON CD-ROM TITLES. PURCHASE ANY HARDWARE & GET LIFETIME CLUB DISCOUNT ON CD-ROM TITLES! UP TO 80% OFF LIST!

TEXEL

LOW COST DOUBLE-SPEED

DM3024 $359 DM-5024 Ext. $469

265ms Average Access, 300kb/sec Transfer Rate
64kb Buffer, Photo CD, Multi-Session, XA, SCSI 2
Double-Speed Drive for the Price of a Single-Speed

WE'VE GOT THEM AGAIN!

DM5021 $269 LOWEST Ext. Drive!

340ms Average Access, 150kb/sec Transfer Rate
64kb Buffer, External SCSI Drive
HURRY! WHILE SUPPLIES LAST!!

FAST SPEED

LOW COST

Trantor T130 SCSI Card 8-bit High Perf. 690kb/sec $79
Adaptec 1522 SCSI 16-bit High Perf. 5mb/sec $159
Internal SCSI Cable $5 External SCSI Cable $10

Lowest Prices Guaranteed!

Sound BLASTER MULTIMEDIA UPGRADE KITS

LOWEST COST MULTIMEDIA KITS

1 SOUND BLASTER PRO **$299**
Deluxe Eq., 20 Voice, Stereo 44kHz, MPC, CD-ROM int
PANASONIC CR-522
380ms Avg Access, 150kb/sec Transfer, 64kb Buffer, MPC
SPECIAL! ADD $20 Grolier's MPC Ency

2 SOUND BLASTER 16 ASP **$389**
ASP 4:1 Comp, 90dB, 16-bit CODEC, WaveBlaster Option
PANASONIC CR-522
380ms Avg Access, 150kb/sec Transfer, 64kb Buffer, MPC
SPECIAL! ADD $20 Grolier's MPC Ency

3 CONNECT SBPRO/16 TO **$199**
Connect the CR-522 to your SBPro/16 (Incl Cable/Drvr)
PANASONIC CR-522
380ms Avg Access, 150kb/sec Transfer, 64kb Buffer MPC
LOWEST COST CD-ROM UPGRADE

TOSHIBA

FASTEST CD-ROM DRIVE

3401B $459 XM-3401E Ext $579

200ms Avg. Access, 330kb/sec Transfer Rate
256k Buffer, Photo CD Multisession, XA, SCSI 2
4X Sampling f/Studio-Quality Red Book Audio

COMPLETE KIT: TMC850 SCSI Card & Cable ADD $59

NEC

CDR-25BJ (OEM) PORTABLE CD-ROM $259
600ms, 150kb/sec Ext. Portable. Trantor T130 & Cable Add $89
CDR-83 INTERNAL SCSI CD-ROM $349
300ms Acc, 150kb/sec, 64kb Trantor T130 & Cable Add $85
CDR-84J (OEM) DOUBLE-SPEED SCSI $509
280ms, 300kb/sec Multi-Spin, 64kb Trantor T130 & Cable Add $89

PANASONIC

CR-522 (OEM) LOW COST PHOTO CD $199
380ms Average Access, 150kb/sec Transfer,
64kb, Photo CD (Single), with Card & Cable
Special! Get Selected Sierra Titles for only $19
BEST VALUE

CR-533 (OEM) SCSI PHOTO CD $329
NEW
290ms Average Access, 150kb/sec Transfer,
128kb Buffer, SCSI-2, Photo CD (Multisession)
Add $25 for Card & Cable or connect to PAS 16

UPGRADE TO THE ULTIMATE

MV [illegible]

Add the MediaVision ProAudio 16 Sound Card with
Any Internal/External SCSI CD-ROM Drive Listed Above
THIS KIT INCLUDES CD-ROM DRIVERS,
AUDIO AND SCSI CABLES– ALL READY TO GO!!

ADD **$159** EXTERNAL ADD $189

NEW! PRO AUDIO STUDIO 16 $229
New! Voice Recognition, Microphone, Sound Impression & More. $20 for CD Cable Kit

SOUND

GRAVIS ULTRASOUND	$149
TURTLE BEACH MULTISOUND	$579
SOUND BLASTER 16 ASP	$199
SOUND BLASTER PRO DELUXE	$119

VIDEO

MV PRO MOVIE SPECTRUM	$299
VIDEO SPIGOT FOR WINDOWS	$429
MEDIA-V FOR WINDOWS	$139
AITECH PRO PC/TV POCKET	$199

1·2·3 Hassle-Free Installation

1. Bring in your computer, Just your box, that's all we need
2. Bother our Sales Staff, or Tell Us what your Kit will Be...
3. And our Techs will help You install the new Kit for Free!

1·2·3 Hassle-Free Installation

LOWEST PRICES! LARGEST SELECTION! FOR MPC DOS & MAC!

APPLICATIONS/BUSINESS	Club*	Disc
Action! Macromind 1.01 (MPC)	$19	$29
Amer. Bus. Phone Book '92 (10 mil)	$19	$29
CorelDraw 3.0 CD-ROM Upgrade	249	269
Corporate Snapshots (11k Data)	$29	$39
Int'l Business & Economic Atlas	$29	$39
Lotus 123 Multimedia Ed. 1.1	$89	N/A
Marketing Master '92 (Bus. Leads)	$19	$29
Microsoft Works Multimedia Ed.	$49	$59
Multimedia Make Your Point (MPC)	$69	$79
Macintosh CD Software Driver	$39	$45
Macromind Director 2.0 (MAC)	$99	129
Pro Phone 92' 3 Disc Set Bus/Res	$69	$79
Pro Phone 93' Business Edition	$29	$39
Pro Phone 93' 7 Disc Set Bus/Res	139	149
Publish It! 2.0 (100+ Clipart)	$29	$39
USA Today (1000+ News Articles)	$57	$69
Video For Windows Microsoft	129	139

EDU-MEDIA CD TITLES	Club*	Disc
Animals! SanDiegoZoo (MPC/DOS)	$25	$35
Animals In Motion	$37	$42
Amer. Heritage Dictionary	$52	$59
Atlas Pack (U.S. & World Atlas)	$25	$35
Beyond Wall of Stars	$29	$35
Berlitz French (MPC)	129	159
Berlitz German (MPC)	129	159
Berlitz Italian (MPC)	129	159
Berlitz Spanish (MPC)	129	159
Bookshelf 92' Microsoft (7 Ref)	$49	Call
CIA World Fact Book	$19	$29
California Elec. Traveler (MPC)	$35	$39
College Handbook 1992	$29	$39
CD Deluxe Pak (4-Titles-In-1)	$49	$69
800 College Boards	$32	$39
Compton's Interact '92 Ency.	259	279
Compton's Interact '92 Upgrade	$99	139
Compton's Multimedia Ency (MPC)	$79	$99
Compton's MPC Ency. (No Man.)	$49	$59
Compton's Family Ency	$29	$39
Cinemania Microsoft (MPC)	$59	$69
Distant Suns by Virtual R. (MPC)	$75	$85
Dictionary of the Living World	$35	$45
Dict. & Languages (Chestnut)	$13	$15
Desert Storm Time (MPC/MAC)	$19	$29
Encarta Ency., Microsoft (MPC)	249	259
Electronic Home Library	$64	$69
Family Doctor (Ans. to 1500)	$29	$39
Family Education Collections	$29	$39
Geo Vision (Vector Based Map)	$14	$15
Grolier's New Ency. 92' (MPC)	$49	$59
Grolier's New Ency. 91' (DOS)	$19	$29
Great Cities of World Vol.1 (MPC)	$21	$29
Great Cities of World Vol.2 (MPC)	$21	$29
Great Wonders World Vol.1 (MPC)	$46	$49
Greatest Book Collection (150)	$39	$49

EDU-MEDIA CD TITLES	Club*	Disc
Guiness MPC Disc of Records	$29	$39
Guiness DOS Disc of Records	$16	$19
Library of the Future 1 (450)	$45	$49
Learn to Speak Spanish Berlitz	$59	$69
Mayo Clinic Health Book (MPC)	$29	$39
Mavis Beacon T. Typing (MPC)	$25	$35
Mammals Nat'l Geographic	$29	$39
Mars Explorer by Virtual (MPC)	$39	$49
Mega Movie Guide	$49	$59
Monarch Notes (MAC/PC)	$59	$69
Our Solar System (Chestnut)	$13	$15
Space Adventure Interactive	$35	$59
Street Atlas USA (MPC Vector)	$95	109
Time Table of History (Sci/Inn)	$19	$29
Time Magazine Almanac 91'	$29	$39
Time Traveler (MAC)	$99	129
Toolworks Grolier's Ency. 91' (MAC)	$59	$79
Toolwork's Reference Library	$21	$29
U.S. Atlas with Automap	$25	$35
U.S. History (DOS/MAC)	$29	$39
U.S. Presidents	$33	$39
U.S. State FactBook (MPC)	$33	$39
USA Wars- Civil War (DOS/MAC)	$35	$45
USA Wars- WWII (DOS/MAC)	$35	$45
USA Wars- Korean War (DOS/MAC)	$35	$45
Vital Signs Health Ref (MPC/MAC)	$69	$79
View From Earth (Time MPC)	$57	$69
World Atlas v3.0 (MPC)	$19	$29
World Vista (MPC)	$52	$59

GRAPHIC MUSIC SHAREWARE	Club*	Disc
Agfa Type CD-Font Library (MAC)	$99	119
Background Elements (MAC/DOS)	$99	129
Beethoven's 9th Symphony (MAC)	$75	$79
Beethoven's String Quart.14 (MAC)	$19	$29
Bibles & Religion (Chestnut)	$13	$15
Clipart Goliath (Chestnut)	$13	$15
Colossal Cookbook (Chestnut)	$13	$15
Composer Quest (Dr. T's MPC)	$29	$39
Complete Bookshop (Chestnut)	$13	$15
Deathstar Arcade Batl (Chestnut)	$13	$15
Desktop Publishing CD v2.0 (MAC)	$29	$39
Dict. & Languages (Chestnut)	$13	$15
DTP PRO FM -Waves (MAC/DOS)	$19	$29
Electronic Library of Art Vol 1 (MPC)	$29	$39
HAM Radio ver 3.0 (Chestnut)	$13	$15
Hotstuff I, Danger (Graphic Anim)	$19	$25
Illus. Works of Shakespeare	$29	$39
Int'l Graphics Library (MAC/PC)	$29	$39
Impressionism Its Sources (MPC)	$59	$65
Jets & Props (2-disc Media Clips)	$22	$29
Jazz Multimedia History (MPC)	$66	$72
Kodak Photo CD Access (M/PC)	$19	$29
Macromind CD ClipAnim (MAC)	$19	$29
MasterTraks Pro v4.0 (MPC)	269	289

GRAPHIC MUSIC SHAREWARE	Club*	Disc
Media Clips 4 Disc Set (MAC/MPC)	$49	$59
MIDI Music Shop (MPC)	$29	$39
Mozart, Multimedia Music (MPC)	$35	$39
Multimedia Beethoven 9th (MPC)	$52	$65
Musical Instruments MS (MPC)	$59	$69
Ocean Imagery Vol.1 (MAC/DOS)	$29	$39
Our Solar System (Chestnut)	$13	$15
People at Leisure (MAC/DOS)	$29	$39
PC-SIG 11th Edition	$19	$29
PC-SIG 12th Edition	$29	$39
Sports ROM (MAC/DOS Clipart)	$29	$39
Shareware Overload (Chestnut)	$13	$15
Sound Library (DOS Wav,MID Clips)	$19	$29
Sound Sensation (Chestnut)	$13	$15
So Much Shareware I	$16	$19
So Much Shareware II	$22	$26
Tempera Access (PhotoCD MPC)	$39	$49
Textures & Backgrounds (M/PC)	$42	$49
TechnoTools (Chestnut)	$13	$15
Too Many Typefonts (Chestnut)	$13	$15
Windoware (Chestnut)	$13	$15
WinWare Vol 3 (MPC)	$19	$29
Wild Places Media Clips (MPC)	$15	$19
World View Media Clips (MPC)	$15	$19

ULTI-TAINMENT CD TITLES	Club*	Disc
600 Days to Coco Island (MAC)	$46	$52
All American Sports	$33	$39
Arcade	$35	$42
BattleChess Enhanced (MPC)	$29	$39
BattleChess	$19	$25
Case of Cautious Condor	$39	$42
Chessmaster 3000 Enhanced (MPC)	$19	$29
Cosmo Osmo (MAC)	$29	$39
Conquest of Longbow	$45	$52
Conan	$27	$32
Creepy Castle (MAC)	$32	$39
Dune I	$39	$45
Ecoquest: the Search for Cetus	$42	$49
Future Wars	$45	$52
Guy Spy (1500 frames Anim MAC)	$35	$39
Hound of Baskerville (Like Sherlock)	$39	$45
Inspector Gadget (Comic Adventure)	$36	$42
Jones in the Fast Lane (MPC/DOS)	$25	$35
Kings Quest V (MPC/DOS)	$19	$29
King Arthur Magic (MAC)	$32	$39
Legend of Kyrandia	$56	$65
Loom from Lucas Films	$25	$35
Lost Treasures I	$36	$42
Leisure Suit Larry 1	$45	$52
Manhole	$36	$42
Madness of Roland (MAC)	$42	$49
Monkey Island	$25	$35
Psycho Killer I	$39	$45
Secret Weapons of Luftwaffe	$25	$35

ULTI-TAINMENT CD TITLES	Club*	Disc
Sherlock Holmes Cons. Det I DOS	$25	$35
Sherlock Holmes Cons. Det I MAC	$32	$42
Sherlock Holmes Cons. Det II	$49	$59
Space Quest IV Roger Wilco	$19	$29
Spaceship Warlock (MAC)	$59	$69
Space War	$39	$42
Spirit Excalibur	$29	$32
Sports Best (3 Popular Games)	$25	$35
Stellar 7	$19	$25
Stories Murder Mystery	$34	$39
Star Trek 25th Anniversary	$55	$59
Total Distortion (MAC)	$89	$99
Total Baseball (DOS/MAC)	$29	$39
Town With No Name	$39	$45
Ultima I-VI Collection on CD	$45	$55
Victor Vector (MPC)	$55	$59
Where in World is Carmen San	$25	$35
Who Killed Sam Rupert (PC/MAC)	$29	$39
Willy Beamish Graphic Advent.	$35	$45
Wing Commdr & Secret Mis 1/2	$29	$39
Wing Comm II w/Speech Pak	$55	$65
Wing Comm II w/ Ultima Under	$55	$65
Wing Commdr & Ultima VI	$25	$35

KID'S & LEARNING CD TITLES	Club*	Disc
A+ Grade	$35	$42
Aesop's Fables (54 Narr. Fables)	$35	$39
Amanda Stories (MAC/MPC)	$59	$65
Annabel's Dreams (MPC)	$59	$65
Arthur Teacher Trouble (MPC)	$25	$35
Barney Bear Goes to School	$25	$29
Barney Bear Goes to Space	$25	$29
Beauty and the Beast (MPC)	$15	$19
Britannica's Family Choice	$29	$39
CD Story Time (3 Pop. Stories)	$16	$19
Dinosaur Adventure (Interactive)	$29	$39
Family Education Collection 20	$29	$39
Illustrated Holy Bible	$29	$39
Learning at Home	$42	$49
McMillan's Children Dict. (MPC)	$39	$49
Mixed Up Mother Goose (MPC)	$19	$29
Noisy Silly House (MAC)	$55	$59
Peter & the Wolf (MPC)	$15	$19
Playing w/Language English (MPC)	$29	$39
Playing w/Language French (MPC)	$29	$39
Playing w/Language German (MPC)	$29	$39
Playing w/Language Japanese MPC	$29	$39
Playing w/Language Spanish (MPC)	$29	$39
Pinocchio (DOS/MAC)	$47	$52
Our House Family Circle (MPC)	$49	$55
Just Grandma & Me (MPC/MAC)	$39	$45
PuttPutt Joins the Parade	$45	$49
PuttPutt's Fun Pack	$29	$35
Talking Jungle Safari	$45	$49
White Horse Child (MPC)	$25	$29

*Club Prices (Red Prices) are valid only with purchase of a CD-ROM Drive. ^Discount Prices (Black Prices) can be Purchased Separately. Call to Special Order Titles not Listed.

NEW CD-ROM TITLES! NEW!

NEW CD-ROM TITLES!!	Club*	Disc
About Cows (DOS/MAC)	$29	$35
Aircraft Encyclopedia (DOS)	$29	$35
Anecdotes Music (DOS)	$19	$25
Audubon's Birds (DOS/MAC)	$19	$25
Audubon's Mammals (DOS/MAC)	$19	$25
Barron's College Guide (DOS)	$19	$25
Bible Library (DOS)	$29	$39
Business Master (DOS)	$20	$25
Bookshelf 93 Microsoft (MPC)	129	139
Book of List (DOS)	$49	$59
C User's Group Library (DOS)	$25	$29
Career Opportunities	$29	$35
California Collection	$16	$19
CICA Windows Disc	$15	$17
Classic Collection (4 Disc Set)	$59	$69
ClipArt Heaven	$29	$35
ClipMaster 5001	$35	$39
Clinton Goes Multimedia	$29	$33
Coates Art review Impressionism	$29	$35
Consumer Information Disc	$29	$35
Crossword Cracker	$19	$25
Creation Stories	$34	$45
Daytime Express	$20	$25
Education Master	$20	$25
European Monarchs	$29	$35
Entertain. Pak Private Eye Mystery	$39	$45
Entertainment Pak Triple Tris	$39	$45
Entertain. Pak Fly/Drive Spect	$39	$45
Entertain. Pak Four Queens Casino	$39	$45
Entertain. Pak Leader Board Coll.	$39	$45
Ent. Pak Link's Collector CD	$39	$45
Font Master	$16	$19
Font Master II	$19	$25
Fonts for the Professional	$29	$35
Food Analyst	$39	$49
Future Wars	$49	$52
Fresh Arte	$29	$35
Game Master	$20	$25
Garbo MSDOS	$15	$17
Gifs Galore	$15	$17
HAM Call	$49	$59
Hobbes OS/2 Archives	$15	$17
Interactive Storytime Vol. 1	$19	$25
Interactive Storytime Vol. 2	$29	$35
I Photograph to Remember	$49	$59
In Print Art Library	$49	$69
Just Fonts	$25	$29
Killer Track CD Music Library	$14	$19
Kids Can Read!	$25	$29
KGB World Factbook	$29	$35
Klotski	$29	$35
Languages of the World	$49	$59
Laura Bow Amon Ra	$42	$49
Ligris Britania	$39	$49
Lost Treasures II	$36	$42

NEW CD-ROM TITLES!!	Club*	Disc
Magazine Rack	[illegible]	$35
Mantis Experimental Fighter	[illegible]	$29
Mario is Missing/World Atlas	[illegible]	$29
Middle East Diary	[illegible]	$35
Mother of All ClipArt	[illegible]	$23
Murmurs of Earth	[illegible]	$59
National Parks	[illegible]	$35
Nightowl Ver.6	[illegible]	$25
Nightowl Ver.7	[illegible]	$25
Nightowl Ver.8	[illegible]	$39
North American FAX Book	[illegible]	$35
North American Indians	[illegible]	$35
Officer's Bookcase	[illegible]	$35
Original Shareware	[illegible]	$13
Pacific Islands	[illegible]	$45
PC Globe/ Mac Globe	[illegible]	$55
Pharmacist guide to Drugs	[illegible]	$35
Phoenix V.3	[illegible]	$19
Pixel Garden	[illegible]	$35
Plant Doctor	[illegible]	$35
Programmer's ROM	[illegible]	$35
Publique Art	[illegible]	$35
Return to the Moon	[illegible]	$55
RBBS in a box Ver 3.1	[illegible]	$35
Roger Ebert Movie Companian	[illegible]	$35
Scouting Report 92	[illegible]	$35
Seals of the U.S. Government	[illegible]	$35
Simtel 20 MS-DOS Archives	[illegible]	$17
SFX-300 Sound Effects	[illegible]	$19
Shakespeare on Disc	[illegible]	$22
Shareware Concept (Power Tools)	[illegible]	$19
Shareware Extravaganza (4 discs)	[illegible]	$59
Shareware Gold II Vol.2, #1	[illegible]	$39
Shareware Online	[illegible]	$35
Sherlock Holmes on Disc	[illegible]	$22
Sherlock Holmes Cons. Det. 3	[illegible]	$65
Sleeping Beauty	[illegible]	$25
So Much Screenware	[illegible]	$35
Source CD-ROM	[illegible]	$35
Space Series Apollo	[illegible]	$35
Sports Illus. Almanac	[illegible]	$45
Terrorist Group Profiles	[illegible]	$35
Tale of Peter Rabbit	[illegible]	$45
Ultimate Shareware Collection	[illegible]	$29
U.S. Civics	[illegible]	$35
U.S.A. State fact Book	[illegible]	$35
VGA Spectrum	[illegible]	$17
VGA Spectrum II	[illegible]	$23
Visions of Saturn	[illegible]	$29
Windows Master	[illegible]	$25
Windows 3.1 CD-ROM (Disc Only)	[illegible]	$19
World of Flight	[illegible]	$29
World of Trains	[illegible]	$29
501 Sound Waves #1	[illegible]	$19
7th Guest NEW 2 CD's 1 Gig.	$55	$59

MPS MULTIMEDIA, INC.

MULTIMEDIA PRODUCTION SYSTEMS
342 WEST PORTAL AVE., SAN FRANCISCO, CALIFORNIA 94127

415.731.4MPS
4 1 5 7 3 1 4 6 7 7
FAX 415.731.1217
OPEN MON-FRI 9:30-6:30, SAT 10:00-5:00

19th AVE
15th AVE
WEST PORTAL AVE
PORTOLA DR.
ST FRANCIS BLVD
N

Terms & Conditions: Credit Same As Cash Prices. VISA, MC, Checks accepted. All returns subject to approval. 15% Restocking Fee. Software Sales are Final. No Returns after 30 days. Mail Orders: $3.00+Shipping. COD's $4.50. S&H Nonrefundable. Not responsible for typos. All Trademarks & Logos Acknowledged.

Whether your office has one computer or one hundred....

We keep you working

AUTHORIZED TECHNICAL SERVICES has the experience *and* the expertise to handle your equipment service needs. Whether you're running one small office with one micro computer, or a statewide network of offices with a complex inventory of computers, video display terminals, printers and data communications devices—you simply cannot afford "down time". Call **ATS** today to find out just how easy it is to stay productive

ATS
AUTHORIZED TECHNICAL SERVICES
1-800-451-4057

HERE'S A PARTIAL LIST OF EQUIPMENT WE SERVICE:
MICROCOMPUTERS: Dell, Epson, Advance Logic (ALR), AT&T, Everex, Leading Edge, AST Research, Compaq, IBM. **LOCAL AREA NETWORKS:** 3Com, Novell. **STORAGE DEVICES:** IOmega (Bernoulli). **DOT MATRIX PRINTERS:** Alps, Datasouth Epson, NEC, Panasonic, Citizen, Texas Instruments, C. Itoh, Digital Equipment (DEC), IBM, Okidata, Printek, Toshiba. **PLOTTERS:** Hewlett-Packard, IBM. **THERMAL PRINTERS:** IBM, Texas Instruments, Panasonic. **LINE PRINTERS:** Data Products, Printronix. **LETTER QUALITY PRINTERS:** C. Itoh, Diablo, NEC Spinwriters. **LASER PRINTERS:** Canon, Epson, IBM, AST, TI, Hewlett-Packard. **VIDEO DISPLAY TERMINALS:** Digital Equipment (DEC), Link, Qume, Tab, Televideo, Wyse. **DATA COMMUNICATIONS:** Hayes.

ATS SERVICE CENTERS:
Los Angeles (310) 839-0020
Orange County (714) 937-0332
Oakland (510) 638-4449
Sacramento (916) 923-2944
San Jose (408) 970-9860

7:30–9pm
Directors on Technology
James Cameron, Film Director & Co Chairman AFI Advanced Technology Council
Credits: *The Terminator I & II, The Abyss, Aliens II*
John Badham, Film Director
Credits: *Point of No Return, Bird on a Wire, Stakeout, Stakeout II, Short Circuits, War Games, Blue Thunder, Dracula, Saturday Night Fever*
Martha Coolidge, Film Director
Credits: *Lost in Yonkers, Ramblin Rose*, HBO's *Crazy About Love*, ABC's *Bare Essentials*, NBC's *Trenchcoat in Paradise, Real Genius, Joy of Sex, Valley Girl*
Moderator: *Jonathan Seybold*, Seybold Seminars

THURSDAY JUNE 24, 1993

8:30–10am
Projects and Prototypes
Edward D. Horowitz, Senior Vice President, Viacom International
Bruce Sidran, Executive Director, MCC/First Cities
Geoff Holmes, Senior Vice President of Technology, Time Warner Inc.
Moderator: *Denise Caruso*, Digital Media

10:30am–12 noon
Technology and Education
Dr. Dana Beth Ardi, President, Dana Ardi Prods.
Nancy Hechinger, Vice President, The Edison Project
Randy Jackson, Vice President of Publishing, TMM (Total MultiMedia)
Steve Carr, Model Technology Site Coordinator, Port Hueneme School District
Robert Tierney, The Ohio State University
Moderator: *Jonathan Seybold*, Seybold Seminars

2–3:30pm
Media Company Strategies
Michele DiLorenzo, Senior Vice President, Viacom New Media
Keith Schaefer, President, Paramount Technology Group
John Papanek, Editor-in-Chief, Time-Life, Inc.
Moderator: *David Baron*, Seybold Seminars

4–5:30pm
Security, Privacy, and Data Protection
Jim Bidzos, President, RSA Data Security
Joseph F. Swyt, President, Macrovision Corp.
Moderator: *Denise Caruso*, Digital Media

7:30–9pm
Neat New Stuff
Leo Hoarty, President, ICTV
John North, Vice President of Strategic Planning, ICTV
Nat Goldhaber, President & CEO, Kaleida Labs
David Kaiser, Vice President of Engineering, Kaleida Labs

FRIDAY JUNE 25, 1993

8:30–10:00am
The State of the Digital Society
Nat Goldhaber, President & CEO, Kaleida Labs
Craig J. Mundie, General Manager Advanced Consumer Technology, Microsoft
Trip Hawkins, President & CEO, The 3DO Company
Moderator: *Denise Caruso*, Digital Media

10:30am–12 noon
Leveraging the Deal: Content, Rights, and the Law
Jessee J. Allread, Vice President of Sales & Marketing, EBook Inc.
Richard D. Thompson, Managing Partner, Silverberg, Katz, Thompson & Braun
Moderator: *David Baron*, Seybold Seminars
Co-Moderator: *Joanna Tamer*, President, S.O.S. Inc.

2–3:30pm
Virtual Reality and Location-Based Entertainment
David Smith, President, Virtus Corporation
Diana Gagnon Hawkins, Consultant, Interactive Associates
Thomas Dolby, Musician/Artist
Bran Ferren, Senior Vice President of Creative Technology, Walt Disney Imagineering
Moderator: *Denise Caruso*, Digital Media

4–5:30pm
Closing Session
Richard Green, President & CEO, CableLabs
Nat Goldhaber, President & CEO, Kaleida Labs
Al Sikes, Vice President of New Media & Technology, Hearst Corporation
Moderator: Jonathan Seybold, Seybold Seminars

SATURDAY, JUNE 26, 1993

Innovation, Content, & Creation
Speakers include:
Allee Willis, Artist/Songwriter
David Riordan, Senior Producer/Creative Director, Philips POV
Ty Roberts, ION Inc.
Peter Black, President, Xiphias
Greg Roach, Artistic Director, Hyperbole Studios
Wendy Richmond, Director of Market Development, WGBH Educational Foundation
Steve Nelson, President, Brilliant Media
Stu Gannes, Books That Work
Glen Hoptman, Publisher & CEO, Lightbeam Communications

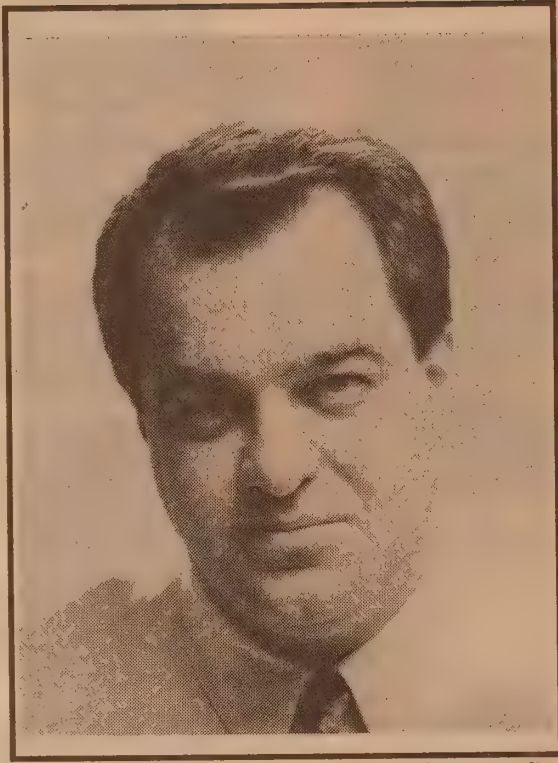
WEDNESDAY, JUNE 23.

2–3:30pm
Telecommunications Policy

We are now setting out to build a new high-speed digital communications infrastructure. This will change the way information and entertainment is delivered and will open up a wealth of new products and services. The impact on our society will probably be more important than the building of the railroads in the 19th century.

But our public policy remains confused and divided. We treat

EFF chairman Mitchell Kapor joins panel on data highways.



RSA Data Security's Jim Bidzos holds forth on security issues.

cable television, telephones, wireless services, and satellite individually rather than as part of a greater whole. We do not seem to know what we want or what our priorities should be.

What do we really want? What can we realistically expect to get? How do we insure equal access, privacy, and interconnectability?

THURSDAY, JUNE 24

Security, Privacy, and Data Protection

We will be able to deliver "books," "movies," "music," "games," computer software, and all manner of "content" to consumers over the new digital communications infrastructure. We expect to develop new kinds of interactive services and electronic transactions. Businesses will be able to communicate all manner of important (and sensitive) information. Individuals will be able to do the same.

But all of this will happen only if people feel secure—if valuable intellectual property cannot be pirated at will; if business transactions, private conversations, and free speech are all protected.

Yet the FBI and the NSA are demanding that network security be limited so that they can continue to eavesdrop on criminals, spies, and other "undesirables."

What are the civil liberty issues involved in creating digital networks? How can the right to privacy be balanced with the government's need to prevent fraud and abuse? What technologies can help resolve these issues to restore faith and trust in the electronic highway? ■

Desktop Video Extravaganza

Friday and Saturday
June 25 & 26
at HT Electronics

Featuring all the latest in DesktopVideo and Personal Video Production from Newtek, Matrox, Fast Electronics, Videomedia, RGB Computer & Video, Sunrize Industries, Caligari and more!
Meet Factory Reps
Attend editing workshops
Show attendance is FREE!!!
Workshops $25 (call to reserve a seat)

Desktop Video Solutions

Authorized Dealer for:

AMILINK
FAST
STUDIO
OZ

We can provide you with a solution to all of your Desktop Video needs.

Up-Coming Seminars at HT Electronics:

June 4: PC — **Matrox Personal Producer** - Complete editing system with machine control, video titling, paint program and audio control.

June 11: AMIGA — **Newtek Video Toaster with RGB AmiLink** - Complete all-in-one broadcast quality video production studio. 4 input switcher, DVEs, Character Generator, 24-bit Paint program, 3D Graphics and Animation, dual Frame Buffer, Luminance Keyer and Frame Grabber.

June 18: PC — **Fast Video Machine** - A/B-Roll editing system complete with machine control, DVEs, Audio Mixer, Video Switcher & TBCs.

June 25 & 26 Desktop Video Extravaganza!!!

Seminars are free and begin at 10:00 AM on dates listed. Please call to reserve a space
If you miss a seminar give us a call to set up a personal demonstration.

Now is stock
Video Toaster 4000!
Call to find out how to upgrade your existing Toaster

HT ELECTRONICS
computer systems

275 N. Mathilda Ave., Sunnyvale, CA 94086
Store Hours: 9:30-6 M-W,F • 9:30-8 Th • 9-5 Sat • Closed Sunday

(408)737-0900
fax (408)245-3109

Multimedia

Super Deals !

Minitower Case with 200W PS
4MB RAM & Motherboard with AMI BIOS
IDE 200MB Hard Drive
1.2MB and 1.44MB Floppy Drives
IDE 2 Floppy Drives & 2 Hard Drives Controller
2 Serial, 1 Parallel and 1 Game Port
Super VGA Video Card with 1MB RAM
SVGA 14 inch Monitor 0.28dp (1024X768)
101 Enhanced Key Keyboard
Microsoft Compatible Mouse

386DX-40 128K / 486DLC-33MHz

$925 / $999

486DX-33MHz 64K / DX2-66MHz 256K Cache

$1199 / $1444

Multimedia Systems

Minitower Case with 200W PS
Motherboard with AMI BIOS / 4 MB RAM
IDE 245MB Hard Drive
1.2MB and 1.44MB Floppy Drives
2 Serial, 1 Parallel and 1 Game Port
Super VGA Video Card with 1MB
15 inch Super VGA Monitor 0.28dp (1024X768)
101 Enhanced Keyboard
Media Audio Spectrum 16 BIT Sound Card
Mitsumi CD-ROM Drive Photo-CD Compatible
6 CD Titles : Encyclopedia, Atlases, Games, 2 Choices
Acoustic Research Powered Speakers
Microsoft Compatible Mouse

386DX-40MHz 64K / 486DLC-33Mhz

$1799 / $1888

486DX-33MHz 128K / 486DX2-66MHz 256K

$2049 / $2399

486DX-33MHz VESA Local-Bus / 256K Cache
Cirrus Logic VESA Local-Bus SVGA Video
IDE Vesa Local-Bus Controller 32 bit

$2,199

intel inside

Multimedia Blowout !

Media Audio Spectrum 16
Mitsumi CD-ROM PHOTO-CD Compatible

Sound Blaster PRO DELUXE **or** MEDIA VISION ProAudio Spectrum 16

Sound Blaster Pro Deluxe Sound Card
AT CD-ROM Interface
Mitsumi CD-ROM drive 350ms
6 CD Software Titles

$369

Hundreds of CD-Titles at everyday's LOW prices

American Bus Phone Book 1992	$18.00	Media Clips 4 PK MPC	$49.00
Authorware Star for Windows	$39.00	Microprose Game Pak Collection! DOS	$29.00
Annabel's Dreams-Egypt MPC	$59.00	Monkey Island DOS	$29.00
Audubon Mammals DOS	$58.00	Mixed-Up Mother Goose MPC	$19.00
Arthur's Teacher Trouble	$25.00	Macmillan Dict. for Children MPC	$35.00
Animals V1.0 DOS	$25.00	Majestic Places	$39.00
Amanda Stories MPC	$39.00	Money, Money, Money	$39.00
Birds of America	$49.00	National Park DOS	$29.00
Barney Bear Goes to School	$25.00	Nat'l GEO Mammals DOS	$29.00
Barney Bear Goes to Space	$25.00	Ocean Digital Imagery V1 DOS	$29.00
Bring The World To Your Senses DOS	$15.00	PC-SIG 11th Ed. DOS	$39.00
Bus & Econ Atlas DOS	$27.00	Playing With Language (English) DOS	$29.00
Battle Chess DOS	$19.00	Playing With Language (French) DOS	$29.00
Beauty & the Beast MPC	$15.00	Playing With Language (German) DOS	$29.00
Best of the Bureau	$19.00	Playing With Language (Japanese) DOS	$29.00
Compton's Encyclopedia MPC	$68.00	Playing With Language (Spanish) DOS	$29.00
Carmen San Diego DOS	$25.00	Peter & Wolf MPC	$15.00
CD Storytime DOS	$16.00	Presidents DOS	$128.00
Chess master 3000 MPC	$19.00	Prophone 1993	$139.00
College Handbook 1992	$29.00	Prophone	$65.00
Composer Quest MPC	$39.00	Publish It 2.0 DOS	$29.00
Corp. Snapshot DOS	$28.00	Renaissance Masters 1	$29.00
CD Game Pack II DOS	$25.00	Renaissance Masters 2	$29.00
CIA World Fact Book DOS	$19.00	The Right College	$19.00
Collection of PC Graphics DOS	$19.00	Survey of Western Art MPC	$29.00
Desert Storm MPC	$21.00	Space Adventure	$29.00
Dictionary of The Living World MPC	$29.00	Secret Weapons DOS	$25.00
Dinosaur Adventure	$35.00	Sherlock Holmes DOS	$25.00
DTP Pro FM-Wave Clipart MPC	$19.00	Stellar 7 DOS	$19.00
Elec Library of ART V1 DOS	$29.00	Sound Library MPC	$19.00
Family Choice/Britannica DOS	$27.00	Sport's Best (3 in 1) DOS	$22.00
Family Doctor DOS	$27.00	Space Quest IV by Sierra DOS	$29.00
Family Education Collections DOS	$23.00	So Much Shareware I DOS	$15.00
Greatest Books Collection	$39.00	So Much Shareware II DOS	$19.00
Great Cities-Vol 1 DOS	$21.00	Tales of Peter Rabbit	$39.00
Great Cities -Vol 2 DOS	$21.00	Tempra Access Photo CD	$39.00
Grips 2 DOS	$26.00	TIME Almanac 1991 DOS	$25.00
Guiness Disk of Records DOS	$15.00	Time Table of History DOS	$19.00
Guinness Disk of Records 1993 MPC	$27.00	Toolworks Encyclopedia MPC	$54.00
Global Explorer	$99.00	Tool Works Reference Library MPC	$21.00
History of the World	$59.00	Total Baseball DOS	$29.00
Holy Bible	$28.00	US Atlas & Automap DOS	$29.00
Illustrated Works of Shakespeare DOS	$28.00	US History DOS	$29.00
Just Grandma and Me MPC	$39.00	US Atlas v3.1 MPC	$22.00
Jets & Props MPC	$23.00	USA Wars: Civil War DOS	$35.00
Jones In Fast Lane MPC	$25.00	USA Wars: Korea DOS	$35.00
King's Quest V MPC	$19.00	USA Wars: WW II DOS	$35.00
Line in the Sand	$39.00	USA Wars: Vietnam DOS	$35.00
Library of Future 1st DOS	$39.00	Ultima I - VI	$39.00
Loom From Lucas Film DOS	$25.00	Vital Signs MPC	$69.00
Lotus 123 V3.1 MPC	$78.00	World Atlas v3.2 MPC	$29.00
Microsoft Bookshelf MPC	$39.00	World View DOS	$19.00
Microsoft Works MPC	$39.00	Wizard MPC	$19.00
Midi Music Shop	$29.00	Wild Places DOS	$19.00
Macromedia Action! for Windows	$28.00	Wing Command & Ult VI DOS	$25.00
Mayo Clinic Family Health Book	$29.00	Winware Vol 3	$23.00
Monarch Notes	$59.00	Whale of a Tale	$68.00
Marketing Master 1992 DOS	$18.00	Willy Beamish - The Adventure	$25.00
Mavis Teaches typing MPC	$25.00	Who Killed Sam Rupert	$29.00

Case and Power Supply	
Mini Tower Case and PS	$50.00
Medium Tower Case and PS	$79.00
Full Tower Case and PS	$99.00
Desktop Case and PS	$65.00
Hard and Floppy Drives	
IDE 80MB Hard Drives	$159.00
IDE 120MB Hard Drives	$188.00
IDE 170MB Hard Drives	$208.00
IDE 210MB Hard Drives	$269.00
IDE 250MB Hard Drives	$275.00
IDE 340MB Hard Drives	$360.00
IDE 540MB Hard Drives	$775.00
1.44MB / 1.2MB FLoppy Drives	$50.00
Monitors and Video Cards	
Genoa 8500VL SVGA	$118.00
Cirrus Logic VL SVGA	$99.00
Orchid Fahrenheit VA801	$145.00
Orchid Fahrenheit 1280 VL	$159.00
Orchid Celcius VL-Bus	$235.00
Orchid P9000 VL / 3MB	$377.00
Diamond Stealth 24 VL-Bus	$159.00
Super VGA 16Bit Video / 1MB	$59.00
Nanao, SONY or NEC Monitors	Call
14" SVGA Monitor (.28dot)	$239.00
14" SVGA Monitor (.28dot) NI	$269.00
15" CTX Flat Screen Monitor	$415.00
Viewsonic 5e	$385.00
Viewsonic 6e	$325.00
Viewsonic 7	$925.00
14" ADI 3E Monitor	$325.00
15" ADI 4G Flat Screen Monitor	$475.00
17" ADI 5A Flat Screen Monitor	$899.00
Fax Modems	
Internal 14,400 Modem	$159.00
External Zoltrix 14400	$199.00
Zoltrix 9600/2400 Modem	$59.00
Zoltrix 2400 Modem Int.	$30.00
MultiMedia	
Mitsumi CD-ROM Internal	$195.00
Panasonic 522 OEM CD-ROM	$225.00
Sony CD-ROM Internal	$249.00
Toshiba 3401B CD-ROM	$465.00
NEC 84-1 CD-ROM	$469.00
Pioneer DRM-600A	$885.00
Pioneer DRM-604X	$1,299.00
Multisound Card by Turtle Beach	$575.00
Sound Blaster Pro Deluxe	$139.00
Media Audio Spectrum 16	$159.00
Keyboards	
101 Enhanced AT Keyboard	$19.00
Maxiswitch Keyboard	$30.00
Mitsumi 101 Key KB	$25.00
Keytronics Keyboard	$35.00
Miscellaneous	
Colorado 120MB Tape Backup	$169.00
Colorado 250MB Tape Backup	$205.00
Maynard 250MB / Tape	$195.00
3 1/2" DSHD Floppies	$0.60
Panasonic KX-P1124i	$239.00
Panasonic KX-P1180	$150.00
Panasonic KX-P1123	$169.00
Ms compatible Mouse	$13.00
Controller Cards	
IDE 2HD/2FD I/O Controller	$14.00
VL IDE 2HD/2FD I/O Controller	$54.00
Ultrastor / Adaptec Controllers	Call
Motherboards with CPU	
386SX-33 Motherboard	$85.00
386DX-40 / 128K Cache	$149.00
486DLC-33 Cyrix	$184.00
486SX-25 / 64K Cache Intel	$233.00
486DX-33 / 64K Cache Intel	$389.00
486DX-33 / 256K VESA Intel	$445.00
486DX-50 / 256K Cache Intel	$575.00
486DX2-66 / 256K Cache Intel	$660.00
486DX2-66 / 256K VESA Intel	$675.00

ORCHID DIAMOND ViewSonic "STATE OF THE ART" TOSHIBA NEC Panasonic Cyrix intel

DIAMOND NANAO LOGITECH
MEDIA VISION PIONEER
CREATIVE CREATIVE LABS, INC CONNER

KONICOM

KONICOM

1510 Noriega Street
San Francisco, CA 94122
Tel : (415)664-3268 Fax : (415)664-0883

Computer Sales and Services

BUSINESS HOURS :
MON-THU : 9:30AM TO 7PM
FRIDAY : 9:30AM TO 8PM
SATURDAY : 10AM TO 6PM

* Prices reflect cash discounts
* Lifetime labor and 1 year parts warranty
* Prices subject to change without notice
* Not responsible for typographical errors
- All logos or marks are trademarks or registered trademarks of the products with which the marks are associated

Quantum MITSUMI Zoltrix
TOSHIBA NEC Panasonic
SONY Cavalier WESTERN DIGITAL TEAC

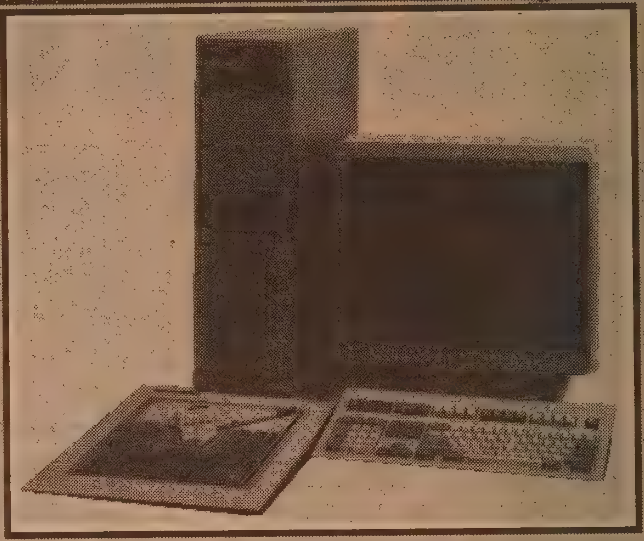
COLORADO MEMORY SYSTEMS INC. Maxi-Switch ViewSonic

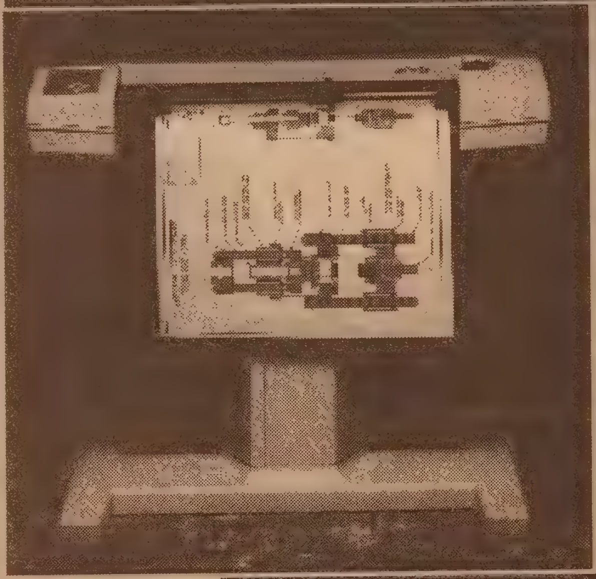
CAD / MULITIMEDIA

CAD VL-bus Workstation

- * 80486 DX2/66 CPU(Ugradable to **P24T** CPU), 256KB Cache
- * **16MB** Memory(32MB Max.), 1.2 & 1.4MB Floppy drive
- * **340MB** IDE Hard drive(13ms), **IDE VL-Bus** Controller
- * Full vertical case, Dual cooling Fan, Heat-Sink
- * **ATI GraphicsUlra Pro VL-Bus** Board(1280X1024, 256 Clolor)
- * **17"** Flat Screen Color Monitor(**1280X1024**), Calcomp **12X12 Digitizer**
- * 101 Keyboard, 2 serial / 1 Parallel port, MS DOS 6.0
- * **Free S/W & H/W Integration**

$3,995





Drawing Manager

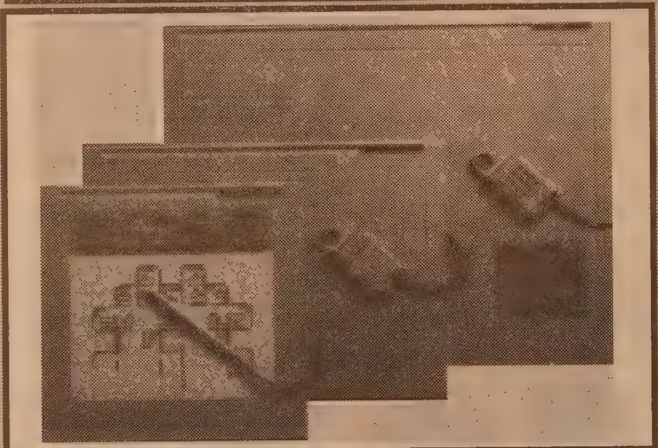
- * Intel 80486DX/33MHz CPU. **8MB** memory, 256KB Cache memory
- * TEAC 1.2MB & 1.44MB FDD, **245MB** IDE HDD, Mouse
- * 2S / 1P ports, 101 Keyboard, Desktop case, DOS 6.0, Windows 3.1
- * **Large size** high resolution scanner (up to **E size,** up to **600dpi)**
- * 1280X1024 Grpahics card (Tracer 1280)
- * Raster background & editing in AutoCAD, Raster to Vector conversion
- * **Complete EDM solutions**(Rasterex S/W & H/W Packages)
- * **Large size digitizer (up to 36X44)**

$Call

True Color System

- * 80486DX2/66 CPU, 256KB Cache, MS DOS 6.0
- * 2 **VL-Bus** slots, 3 **EISA** slots, 3 **ISA** slots
- * **16MB** RAM(128MB Max.), **340MB** IDE Hard drive(13ms)
- * **IDE VL-Bus** Controller , Wacom 6 X 9 **Pressure Sensitive** cordless Digitizer
- * Matrox MGA Board(**1024X768, 16 mil. colors, up to 1600X1200, 60 mil. winmarks)**
- * ScanMaker II(upto **1200 dpi**) **24 bit** flatbed color Scanner w/ **Image Star** software
- * **Fargo Thermal Wax color printer.**(Letter and A4 size, paper and transparencies)
- * **17" Trinitron tube** color monitor, MS Windows 3.1
- * Mid. vertical case, 250W P.S. 2 serial / 1 parallel port
- * **Free S/W & H/W Integration**

$6,995



Interactive Multimedia

IBM

- * **IBM ValuePoint 486/33 System**. 256KB Cache
- * **8MB** RAM(32MB Max.). **240MB** IDE Hard drive. 1.44MB Floppy Drive
- * IBM Mouse, IBM 101 Keyboard, 2 serial / 1 Parallel port
- * Built-in VGA board(1024X768), **Toshiba CD ROM(200ms, 380KB/S)**
- * **Media Vision Proaudio 16** sound card, Amplified speaker
- * **Creative Lab Video SPIGOT** continuous frame capture board
- * includes MS Windows 3.1, Video for Windows, Multimedia ToolBook, -MediaBlitz, Asymetrix Make your point, MS DOS 6.0
- * **Free S/W & H/W Integration**

$3,395

Upgrade Your 286/386 to Fast 486 VEISA computer System

- * 2 Local Bus, 3 EISA, 3 ISA Bus Slots
- * Costomize Your System to your needs
- * 256 KB Cache Standard
- * Free Technical Support
- * Up to 128 MB RAM Support
- * Call us for best pricing

Hercules

VIDEO SEVEN

MICROTEK
Better Images Through Innovation.

DIAMOND
Computer Systems, Inc.

GRAPHICS / PUBLISHING

#9

#9 GXi TC (L29)

1280 X 1024, Real Color

- * T134020/40MHz graphics card
- * 1024 X 768, 16.7 million colors
- * Built-in VGA or Pass through
- * 2048 X 2048 virtual resolution
- * Special 5 years warranty

$ 1,495

TRUEVISION®

Targa+ / ATVista

The Best Multimedia

- * TARGA+ 16 / 32 / 64
- * ATVista 1M / 2M / 4M
- * Bravado
- * TIPS
- * Truevision 1024 / 32

$Call

matrox

MG3D / MG3D Ultra

MG 3D

- * 1024 X 768, 4096 Colors, ISA
- * 3D Dynaview for AutoCAD

MG 3D Ultra

- * 1280 X 1024, 16 million Colors, EISA
- * 3D Dynaview for AutoCAD

$Call

MICROTEK

Better Images Through Innovation.

ScanMaker

ScanMaker II

- * Flatbed 24 bit color scanner
- * 1200 dpi resolution

$895

ScanMaker 1850

- * 35mm Slide 24 bit film scanner
- * 1850 X 1850 dpi resolution

$ 1,495

XLI CORPORATION

2400dpi PRINTING

Highest Quality Output

- * For HP Laser II, III, Canon
- * 256 gray level printing
- * 35 PostScript-mached fonts
- * 2400 dpi graphics, 1200 dpi text
- * Windows, DOS driver

$1,595

HOUSTON INSTRUMENT®

A Summagraphics Company

Ink Jet Plotter (V50)

20X faster

- * 360 dpi A-C size, Inkjet Plotter
- * Up to 20 time faster than Pen Plotter
- * Emulates HPGL/2, HPGL, IBM XL24
- * Single sheet or rollfeed (Option)

$1,595

FARGO

Primera Color Printer

Thermal Wax Printer

- * 4X faster than Inkjet
- * Presentations graphics, transparencies
- * Windows 3.1 Driver
- *Thermal transfer print quality
- * Very low cost to operate
- * Deliver rich and vibrant Images

$895

Ikegami®

20" Color Monitors

CT 20A

- * SONY Multimode Trinitron Tube
- * Up to 1600 X 1280 resolution

$2,095

CN 20A

- * 1280 X 1024 Non-interlaced
- * OCLI Shadowmask

$1,495

MONITORS	
* 37" Mitsubishi XC3725,3715	$ Call
* 33" Mitsubishi XC3315	$ Call
* 21" NEC 6FG	$2,495
* 20" Seiko 2070LR	$2,195
* 21" Hitachi Accuview	$2,495
* 20" Ikegami CT20A(Trinitron)	$2,095
* 20" Ikegami CN20A	$1,495
* 20" Nanao T660i	$2,495
* 20" SONY 2038	$2,395
* 20" Mitsubishi 7955	$1,995
* 20" Hitachi CM2085	$1,395
* 20" Sampo AlphaScan	$1,145
* 17" Seiko 1760	$1,095
* 17" NEC 5FG	$1,495
* 17" Nanao T560i	$1,795
* 17" Nanao F550i	$1,095
* 14" Sampo AlphaScan	$ 395

COLOR PRINTERS	
* Seiko ColorPoint PSX	$4,995
* Seiko ColorPoint PSE	$2,595
* Mitsubishi S3410 (DyeSub)	$6,995
* Fargo Primera(Thermal Wax)	$ 895

GRAPHICS CARD	
* RASTEREX Tracer 1280	$2,695
* SPEA 1280	$1,695
* #9GXI TC L29	$1,495
* #9GXI L23 / 25	$1,095 /1,395
* #9GXE L11 / 12	$ 595 / 695
* Artist XJS 12-16	$2,195
* Artist XJS Lite	$1,495
* Artist Winsprint 100+	$ 445
* Artist Winsprint 150+	$ 545
* Hercules GS Gold 16	$ 395
* Hercules Graphite	$ 345
* Metheus 1104+16	$ 995
* Metheus 1104+256	$1,095
* Matrox 1024	$ Call
* Matrox Impression AT	$ Call
* Matrox MG 3D Ultra	$ Call
* Vector 1280 (for Fix freq.)	$ 595
* Diamond VIPER VLB 2MB	$ 445
* Stealth 24X V-Local Bus	$ 195
* ATI Graphics Ultra Pro 2MB	$ 595
* ATI Graphics Ultra + 2MB	$ 495
* TrueVision 1024/32	$1,595
* TrueVision 1024XP/24	$1,295

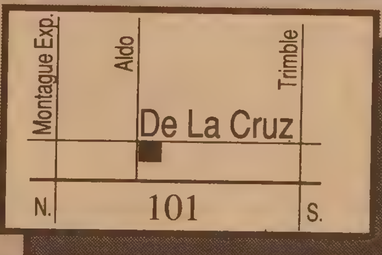
PLOTTERS	
* Calcomp 2036 (A-E)	$4,095
* Calcomp 2024 (A-D)	$3,195
* HP DesignJet (A-E) 600 dpi	$6,595
* HP DesignJet (A-D) 600 dpi	$5,495
* HP color InkJet (A-D)	$7,095
* HP color InkJet (A-E)	$8,495
* HP 7599B (A-E)	$7,695
* HP 7596C (A-E)	$6,695
* HP 7595C (A-E)	$5,295
* HP DraftPro + (A-E)	$4,195
* HP DraftPro + (A-D)	$3,195
* HP 7475A (A-B)	$1,495
* H.I.DMP 162R (A-E)	$4,385
* H.I. DMP 162 (A-E)	$3,695
* H.I. DMP 161 (A-D)	$2,895
* H.I. JetPro (A-C) V 50	$1,595
* Enter SP600 (A-B)	$ 695
* Mutoh XP-501 (A-D)	$4,195
* Roland GRX300 (A-D)	$3,445
* JDL 850XP-1M (A-C)	$2,895
* AMT Accel244 (A-C)	$ 895
* PacificData InkJet (A-C)	$1,195

DIGITIZERS	
* Calcomp 44 X 60	$1,895
* Calcomp 36 X 48	$1,695
* Calcomp 24 X 36	$1,495
* Calcomp 18 X 24	$1,295
* Calcomp 12 X 18	$ 645
* Calcomp 12 X 12(P.Sen)	$ 495
* Calcomp 12 X 12	$ 289
* Calcomp 6 X 9(P.Sen)	$ 450
* Summa S. MG2 42 X 60	$3,595
* Summa S. MG2 36 X 48	$2,995
* Summa S. MG2 24 X 36	$2,595
* Summa S. MG2 17 X 24	$2,195
* Summa S. III 12 X 18	$ 595
* Summa S. III 12 X 12	$ 315
* Kurta XGT 12X12	$ 645
* Kurta XGT 12X18	$ 845
* Kurta IS/ONE 12X12	$ 345
* Kurta IS/ONE 12X17	$ 595
* Kurta XLC 18X24	$1,195
* WACOM 6X9	$ 545
* WACOM 12 X 12	$ 695
* WACOM 12X18	$1,195
* WACOM 18X25	$2,895

JEMINI
ELECTRONICS
The house of CAD & Graphics Equipment
Mon - Fri : 8-6   Sat : 10-4

3448 De La Cruz Blvd., Santa Clara, CA 95054
Phone (408)727-9986   Fax (408)727-7687

- * Price reflects 3% cash discount
- * Price subject to change without notice
- * Not responsible for typographical errors
- * All trademarks belong to their respective companies



Free Technical Support,   New Low Price !   Please call for other products

NANAO®   CalComp A Lockheed Company   RASTEREX   hp HEWLETT PACKARD

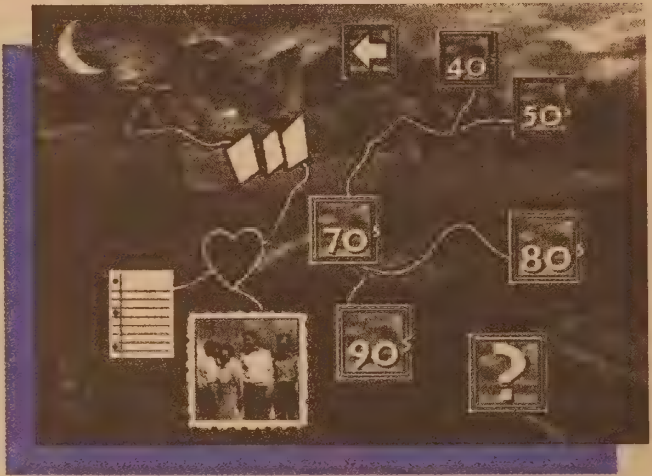
Live Multimedia

MULTIMEDIA 101

Digital Techniques In Performance Art

BY JONATHAN L.

Though multimedia itself seems to be in a perpetual state of lurking offstage, some artists are already using its techniques to entertain the audience. Using digital tools to manipulate and interact with images and sounds had been done experimentally in performance art even before the 1988 introduction of HyperCard and VideoWorks (now known as Director). Those two applications, however, stimulated a new and continuing wave of creativity in the performance art community.



Amid current rumors of half a dozen "multimedia nightclubs" in the works in San Francisco alone, it seems likely that multimedia will be experienced live and in public settings by most members of the public long before it appears in the home. Besides the other "hot-ticket" aspects of multimedia, the live-performance area has other advantages: performers and theatrical creators have backgrounds in telling a story, in aesthetic effects and pleasure, and in working through technical problems of combining media.

Here—as in every other area of multimedia—there is much discussion of approach and theory. Not surprisingly, the two major themes that have emerged are a short-term, economic one—"How are we ever going to get our hands on the equipment we need for this technology?"—and a longer-term, more open-ended one—"How do we address this technology, and what is it going to do to our art, our culture, and our society?"

There's an extended discussion of these issues, for instance, in the Cobra Lounge—Electronic Vaudeville topic in The WELL's Muchomedia conference. For a quick taste of the flavor, here's a quote from Mark Petrakis, impresario of the Cobra Lounge, on an interactive multimedia event recently staged in San Francisco. "[Interactive theatre] is going to have to be supportive of all kinds of group collaboration; both on the part of the 'world makers,' and on the part of those who will interact with those worlds. In such environments people will find themselves engaged, and so will challenge the system and each other to be present, to make something of the

Copyright © 1993 by Jonathan E. All rights reserved.

5 Years Labor & 1 Year Parts Warranty On All Systems

Name Brand Quality - Satisfaction Guaranteed

BCS*A THE COMPUTER STORE YOU CAN COUNT ON

INTEL 486DX - 33/50/66 MHZ
128K Cache 170 MB HD

INTEL 486-33/50/66DX2 CPU
4Mb Ram 70 NS (UPTO 64Mb)
1.2FD &1.44FD
128K CACHE (UP TO 256K CACHE)
170 MB IDE HARD DRIVE
SVGA MONITOR (1024X768 .28DP)
TRIDENT 8900 SVGA CARD W/1MB
2HD/2FD IDE CONTROLLER W/2S 1P 1G
101 ENCHANCED KEYBOARD

Complete System $1449/$1629/$1699

VESA LOCAL BUS 486-33/50/66 MHZ

This month's SPECIAL

INTEL 486 DX/CPU
128k Cache (up to 256KB)
4MB RAM 70 ns (up to 32 MB)
Teac 1.2 Floppy Drive
Teac 1.44 Floppy Drive
170 MB IDE Hard Drive
Impression SVGA Monitor (1024x768 .28dp)
SVGA Card VLB 32 bit
IDE Controller VLB 32 bit

☞ **Complete $1549/$1729/$1799**

LOW PRICE !!!

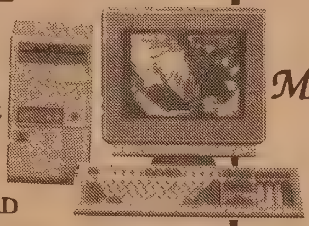
PRO AUDIO SPECTRUM 16	$185
VESA LB VIDEO W/ 1MB	$99
170 MB HARD DRIVE	$249
US ROBOTICS 14.4 FAX/MODEM	$195
CHAPLET 486/25SX NOTEBOOK	$1,429
CD ROM DRIVE	$219
LABTEC SPEAKERS	$25
SOUND BLASTER PRO DELUXE	$149
ETHERNET NE2000 NETWORK CARD	$75

CALL FOR

NICE Motherboard (Made in U.S.A)
VESA Standard Local Bus Motherboard
Panasonic Printers
Hewlett Packard Printers
Spinnaker Eight-in-One Program
DESQ View 386

386 - 40 MHZ
SVGA 170 MB SYSTEM

386 - 40DX W/64K CACHE
4 MB RAM 70 NS
(UP TO 32 MB)
1.2 FLOPPY DRIVE
1.44 FLOPPY DRIVE
170 MB IDE HARD DRIVE
IDE I/O CONTROLLER
SVGA MONITOR
(1024X768 .28DP)
101 ENHANCED KEYBOARD
SVGA CARD W/1 MB
CASE W/230 PS



Complete System $1159

FREE!

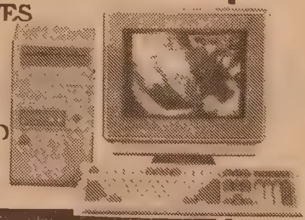
Mouse with every system!

FREE!

Software installation with every system purchase

MICRONICS !!!
486DX/33 VLB SYSTEM

MICRONICS VESA LB MOTHERBOARD
170MB IDE HARD DRIVE
1.2 and 1.44 FLOPPY DRIVES
IDE I/O CONTROLLER
SVGA MONITOR .28 DP
SVGA CARD W/ 1 MB
QUALITY CASE W/230 PS
101 ENHANCED KEYBOARD



Complete System $1899

Video Options

MGP Card	$17
VGA Card 800x600/256K	$39
TRIDENT 8900 1024x768/1M	$75
TSENG LAB 1024x768/1M	$99
PARADISE 1024X768/1M	$99
ACUMOS ACCELERATOR W/1M	$99
STEALTH 24	$179
DIAMOND SPEEDSTAR PRO VLB	$139
ATI ULTRA PRO W/2M	$459
ATI VESA LOCAL BUS	$329
CALL FOR ITEMS NOT LISTED	

Motherboard w/CPU

486-33/50/66 DX	$470/639/698
486-33/50/66DX LOCAL BUS	$499/669/729
386-40 mhz/64k cache	$175
386-25SX no cache	$105

Monitors

14" Amber	$105
SVGA 1024x768 0.28DP	$279
SVGA 1024x768 0.28DPNI	$305
15" SAMSUNG SYNMASTER	$499
15" MAG15F 1280X1024 NI	$605
15" NEC3FGX 1024X768	$629
17" SAMSUNG 1280X1024	$899
17" NANAO 1280X1024 NI	$1,129
17" MAG 1280X1024 NI	$1.099
17" VIEWSONIC 1280X1024	$1,099

Hard Drive

40/80 MB HD	$129/189
120/200 MB HD	$220/309
340 MB HD	$470

Case w/Power Supply

Mini Tower Case W/230W PS	$59
Baby AT Case W/230W PS	$61
Middle Tower Case W/230W PS	$85
Big Tower Case W/230W PS	$105
Black Case W/PS	LOW

Miscellaneous

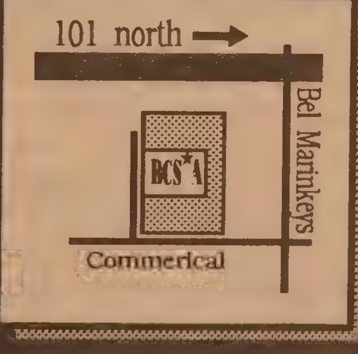
101KB	$24
101KB Maxiswitch	$39
101KB Keytronic	$49
Northgate Omni KB	$79
1.2 Floppy Drive	$55
1.44 Floppy Drive	$48
Three Button Mouse	$13
96/96/24 Fax/Modem	$69
2400 Modem	$35
Colorado Tape Backup 250 MB	$225
Heat Sink with Fan	$15

BCS*A Computers

8A Commercial Blvd Novato CA 94949
☎: (415)883-7392 Fax: (415)883-8104
Hours: M-F 10:00am to 6:00pm
Sat 11:00am to 4:00pm

- Dealer Inquiries Welcome
- Volume Discount Available

Price subject to change without notice
Not responsible for typographical error
Trademarks are registered by the respective companies



experience, to play the game, to be part of the show. ... It must first of all root itself in some kind of ritual behavior, because where there is ritual behavior, there too is 'show business,' and all technologies aside, show business is the serious fun business; where we turn, as a group, to share in the mysteries of transformation. That is the challenge that a 21st century 'interactive' theatre must meet. When it does, then it will take its place in the popular imagination right there alongside 19th century plays and operas, and 20th century movies and rock concerts."

> **Artist Dana Atchley:**
>
> "If I want to break out of the show, if I'm tired of it, or don't feel the audience is buying it, I can just hit the road and go right on to the next piece. So I can go backwards, forwards, stop, and break out—these are great attributes as a performer."

NEXT EXIT

Dana Atchley has firmly grasped the essence of what interactive multimedia can do for the performance artist with his "Next Exit" show. Using MacroMedia's Director to control the sequence and pacing of each show enables him to "create a way to get onstage and have the freedom that a traditional songwriter or storyteller would have."

The show consists of Atchley telling stories of his life, much of which he's spent traveling around the US photographing roadside attractions and videotaping various bizarre and wonderful characters. He explains, "I've been a collector of images. I have every image I've taken since I was seven years old and got my first camera, every negative."

He laughs, "It's sick, it's compulsive. But I'm not the only one in my family that's been doing that. We have a complete family photographic history since 1863 to the present." Atchley has transferred these images to videodisc, shot a small amount of new footage and recorded voices of family members to flesh out some of his stories, added graphics to the video in appropriate places (such as when he crashed the car during his first driving lesson), and used Director to create the presentation that is the framework of his show.

Before performing, Atchley prepares by "packing his suitcase." Using Director, he drags the icon for each story he wants to tell that night into his virtual on-screen suitcase. Some stories are packed individually; some are stored in complete decades, the equivalent of a desktop folder. Each act of a show is represented by a suitcase, and each suitcase will unpack itself, arranging the story and decade icons in order on the highway icon representing the planned sequence of the show. This process is analagous to a musician's set list; it's a guide to what he'll do that night, but it can be changed spontaneously.

The screens from Director are projected onto the stage as the set, and there's a short prerecorded story about the alphabet game Atchley played on childhood family road trips. He enters carrying a suitcase and blows on a stack of logs with a TV set perched on top to create a video campfire. He addresses the audience as "the unseen eyes in the woods" and drops the real suitcase with a clunk, which cues the projected suitcase to unpack on screen.

Up to this point, he has had no immediate control over what's happening on screen except for cuing the unpacking of the suitcase. However, from now on he has complete improvisational direction over what appears, through manipulation of the story icons and a videodisc control panel (in Director) using a wireless mouse or trackball: "If I want to break out of the show, if I'm tired of it or don't feel the audience is buying it, I can just hit the road and go right on to the next piece. So I can go backwards, forwards, stop, and break out—these are great attributes as a performer."

Obviously not all of "Next Exit" was produced using desktop techniques. Most of the material predates the personal computer, and a lot of the graphics were created using the high-end Varitel Video Paintbox. However, the show owes much of its current manifestation to desktop multimedia.

Regardless of the technical details, the most important element of "Next Exit" is its emotional content, which proves most convincingly that multimedia will be a vehicle for personal expression. In addition to its live performance abilities, "Next Exit" has substantial promise as both a gallery installation and as a boxed consumer item.

Dana Atchley will present "Next Exit" live at the American Film Institute, 2021 Northwestern Avenue, Los Angeles, CA 90027, on July 9. Call 1-800-999-4AFI for further info. Look for him to appear at Life on the Water in the Bay Area later this year.

NEW MUSIC THEATRE, ZAKROS INTERARTS

Randall Packer and Belén García-Alvarado of New Music Theatre work on a less personal scale, producing both large theatrical pieces and trade-show presentations. Their last piece was a site-specific and satirical presentation at the Apple Expo.

They created a fictitious product called the Artomatic to parody the quality of clip art and sounds bundled with applications. They also spoofed the marketing claims that multimedia products "allow people to make instant automatic art" by putting "together the worst possible presentation you could imagine." They quickly added that the latter part of the piece showed that "you can make really interesting art with Director," which was the application used for the presentation.

Video effects were generated live by the VideoMachine from Fast Electronic, and Pamela Z directly manipulated the sound through the BodySynth, which Randall describes as "the most exciting thing I've seen, because it provides a direct link between a human figure and the theatrical environment." (For information on the BodySynth, contact Ed Severinghaus at 415/387-1142.)

Packer and Garcia-Alvarado also run Zakros InterArts in San Francisco, which offers workshops and demonstrations for various useful multimedia techniques on most Monday evenings. On June 14, Packer will show how Director can integrate graphics and animation, with MIDI and other music technologies. On June 21, Mark Segal of Silicon Graphics will preview the multimedia capabilities—including video, animation, and virtual reality—of SGI's new Indigo computer. On June 28, visual artist Charles Rose will demonstrate the uses of Kodak's PhotoCD technology for digitizing high-quality imagery for multimedia authoring, theatre design, and 3-D animation. The workshops cost a very reasonable $20 for a small-group situation, start at 7 pm, and are held at 614 York St., San Francisco, CA 94110. Call (415)282-5497 for further information.

ONLINE DESIGN

The OnLine Design Multimedia Project of May 14–15 demonstrated the pitfalls awaiting those who dive into multimedia without sufficient resources. The original idea was a relatively simple display of Ampersand Design's computer equipment, basically

GOLDEN MICRO COMPUTERS

OPEN 7 DAYS

5 Years Labor Warranty
1 Year Parts Warranty
Extended Warranty Available!

EVERY SYSTEM INCLUDES:

4 MB RAM, 120MB IDE Hard Drive, SVGA Monitor (1024x768, .28dp) & Trident 1MB SVGA Card, 2 Teac Floppy Drives (1.2 & 1.44MB), IDE/IO Card, 2 serial, 1 parallel, and 1 game ports, 101 Enhanced Keyboard, Minitower or Desktop Case with Power Supply.

SYSTEM UPGRADES:

Add $30 for 256K cache • Add $150 for EISA Systems
Add $80 for Local Bus System (Includes VGA & IDE Interface)

VESA Local Bus 486DX 64K DX2-66/DX-50 DX2-50/DX-33 COMPLETE SYSTEMS

- 4MB RAM exp to 32MB
- 8K Internal Cache
- Shadow RAM

Landmark speed:
220/167/167/151 MHz

$1460/1410
$1340/1230

486DX 64K DX2-66/DX-50 DX2-50/DX-33 COMPLETE SYSTEMS

- 4MB RAM exp to 32MB
- 8K Internal Cache
- Shadow RAM

Landmark speed:
220/167/167/151 MHz

$1380/1330
$1260/1150

486SX 64K SX-25/SX-20 SLC-33/25 COMPLETE SYSTEMS

- 4MB RAM exp to 32MB
- 8K Internal Cache
- Shadow RAM

Landmark speed:
112/90/90 MHz

$960/960
$950/930

386DX 64K 40/33/25 COMPLETE SYSTEMS

- 4MB RAM exp to 32MB
- Shadow RAM

Landmark speed:
65/55/41 MHz

$910/910
$900

386SX 33/25 COMPLETE SYSTEMS

- 4MB RAM exp. to 32MB
- Shadow RAM

Landmark speed:
34/23 MHz

$860/860

CASE & POWER SUPPLY

Minitower w/200 Watt	$50
Desktop w/200 Watt	50
Mid Tower w/230 Watt	80
Full Tower w/250 Watt	110
200/230 Watt power supply	30/33
230/250 Watt power supply	39/41

VGA CARDS

VGA 8-bit	$16
VGA 800x600, 256K	24
OAK 1MB	48
Trident (8900CL) 1MB	53
Tseng ET 4000	74
SpeedStar 24X	169
Stealth w/Sierra	175
Orchid Prodesigner IIs	119
Fahrenheit 1280 Win Acc (ISA)	155
Fahrenheit 1280 Win Acc (VESA)	165

ADD ON CARDS

MGP	$14
IDE controller	13
I/O (2s, 1p, 1g)	13
IDE I/O (2s, 1p, 1g)	14
4 Floppy controller	25
MFM Controller	25
ESDI controller	39
RLL controller	39
SCSI (16 bit)	65
Ethernet 8 bit/16bit	59/71

PRINTERS

Panasonic 1180	$155
Panasonic 1123	199
Panasonic 1124i	285
Panasonic 1164	365

FLOPPY DRIVES

Teac 1.2MB 5.25"	$51
Teac 1.44MB 3.5"	45

MISCELLANEOUS

387SX25/16 Math Co	$61/59
387DX-40/33 Math Co	69/65
1MB 9x70 SIMM	29
256K x 1 70/80ns DRAM	70¢
256K x 9 70/80ns SIMM/DIPP	8
4MB x 9 70ns SIMM	130
MS mouse (OEM)	40
Mouse	10
Sound Blaster	75

CD ROM

Sony CDU31A	$210
Mitsumi	185

KEYBOARDS

101 Enhanced	$18
Maxiswitch	30
Keytronic	33

MODEM

2400 Baud Internal	$29
9600/2400 Fax/Modem	49
9600 Modem External	190
14,400 Fax/Modem Int.	170

MOTHERBOARDS & CPU

286-12	$50
386SX-25/33	85/85
386DX-25	135
386DX-33 64K	135
386DX-40 64K	135
486SX-25/33 (CYRIX)	150/170
486SX-20 64K	219
486SX-25 64K	260
486DX-33 64K	380
486DX2-50 64K	480
486DX-50 64K	520
486DX2-66 64K	600

TAPE DRIVES

120 MB Colorado	$160
250 MB Colorado	180
250 MB Archive	170
120 MB/250 MB Tape	20/23

MONITORS

14" Mono	$85
14" Mono VGA	99
14" SVGA (.39)	200
14" SVGA (.28)	235
14" Non-Int SVGA	270
Viewsonic 6E	320
Sony 1304 (Non-Int)	560
14" Microscan 3E+	330
15" Microscan 4F	450

HARD DISK

40 MB Conner	$115
80 MB Conner	175
120 MB Conner/Maxtor	199
170 MB W.D./Conner	219
213 MB Maxtor/Conner	270
340 MB Maxtor	390
520 MB Fujitsu	780
1.05 GB Fujitsu	1090

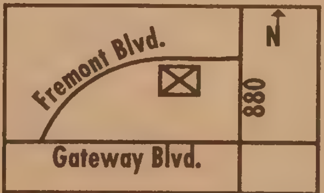
PC Repairs & Upgrades Welcome

GOLDEN MICRO COMPUTERS

46560 Fremont Blvd, Suite 408
Fremont, CA 94538 FAX (510) 623-0321

(510) 623-0866

Hours M-F 9-6 Sat/Sun 10-4 ATM COD



geared towards high-end graphic design and prepress work.

When the QuickTime capabilities became available, Howard Vicini piggybacked the concept of using the occasion to show what could be done with the technology in a period of three months by a relatively inexperienced group of artists. It was a brilliant and worthy idea; its results show that creating viable multimedia, especially live, is not easy.

The project was plagued by the sort of difficulties that are hard to foresee—new tape machines burning out while recording video, bad cable connections, etc. These problems can be solved with duplicate equipment and more generous scheduling, but those luxuries aren't always available. Another problem was shortage of RAM. One Quadra 700 was running with only four megs. As artist Sue Sellars said, "It's like running a Mercedes with a *Deux Cheveaux* motor." To make things worse, it was being used to demonstrate Painter, v2, which requires eight megs. The predictable happened—it crashed. This was really a pity; not only was Sellars' art very impressive for its content and technique, but she also had some personal interaction going on with those around her who were beginning to use the machine as well.

> Amid current rumors of half a dozen "multimedia nightclubs" in the works in San Francisco alone, it seems likely that multimedia will be experienced live and in public settings by most members of the public long before it appears in the home.

What was shown were videotapes of QuickTime movies, many without sound. Clearly it is possible for neophytes to produce pretty visual effects and edit video footage using QuickTime. However, the interactive possibilities of multimedia were not demonstrated.

By far the most serious problems came about due to the presentation of the event and the content of most of the work. These are exactly the sort of things that experienced and trained performance artists are used to dealing with, and more experience in these areas could have dramatically improved the outcome.

This was an extremely ambitious undertaking, and those involved should be applauded for having the guts to attempt such a thing in public. As an experiment designed to show what it takes to make multimedia, its result is unequivocal: it takes more than meets the eye. ■

United Solutions, INC.

Manufacturing, VGA, Multimedia, Motherboards.

"FOR PRICE, PERFORMANCE, SERVICE AND SUPPORT, UNITED SOLUTIONS...IS UNQUESTIONABLY- THE BEST BUY" PC -PC Magazine

NOW HEAR THIS: U.S.I's 4th Anniversary Celebration.

With Pleasure *Outrageous prices*
2 year warranty

The amazing **U.S.I/W32 board** **129.00**
The new VL-Bus board *" Lightning-Fast"*
Based on the new generation TSENG LABS product ET4000/W32
32 BIT VL-BUS/16.7 MILLION COLORS & UP TO 1280X1024 Res.
WINDOWS ACCELERATOR VGA
- *TOP DOS SCREEN ACCESS*
- *AMAZING WINDOWS SPEED & PERFORMANCE*
- *Provides the wide bandwidth to handle today & tomorrows MULTIMEDIA applications.*

U.S.I/Complete W32 **169.00**
same as U.S.I./W32 plus IDE/IO All in one board.

U.S.I/MEGACOLOR **119.00**
2MB , CIRRUS LOGIC cl-gd5426 chipset. V-L BUS, 16.7 MILLION COLORS & UP TO 1280X1024 Res. W/2MB $149.00

U.S.I/S3gui **129.00**
2MB VGA, Based on S3 86c801 chip. Built in VESA standards, up to 1280X1024 Res, 16.7 Million photorealistic colors. W/2MB $159.00

U.S.I/HICOLOR *ET4000 33K colors 16 bit*	**69.00**
U.S.I/1024WA *16 bit Window Accelerator*	**39.00**
U.S.I/Image1024 *16 bit SVGA w/Oak chip*	**35.00**
U.S.I/Image800 *16 bit SVGA w/AVGA*	**25.00**
U.S.I/Laser *H-P IIP & III Memory Board*	**14.00**

U.S.I/486 *VL-Bus M/B all 486 DX & SX* **159.00**
w/SIS chipset & "ZIF" socket, up to 32MB on board, supports 2X32 bit VL-Bus slots, 6X16 bit ISA slots. AMI BIOS
(a variety of other main boards available.)

U.S.I/OptiViewVideo Board **259.00**
This BOARD allows any PC-AT compatible PC to display, scale, and capture full-motion video in a windows environment, transforming it into a low-cost multimedia system.
Its unique design outputs video directly through the PC bus to the existing VGA frame buffer, eliminating the need for a separate video frame buffer and complicated graphics interface circuitry.
FEATURES: TV Tuner-displays up to 122 channels. Full-motion video preview . True-color frame capture / User-programmable frame size, resolution, and capture speed. Captured images easily imported into many desktop publishing packages. Audio control can be captured directly to headphone or speakers. Full-Screen Video Hot Key, transforms your VGA monitor into a full-screen TV.

U.S.I/SoundMedia **149.00**
SM Soundboard with top notch surface mount design, combines four cards in one. A stereo sound card, an interface card for joysticks, a MIDI card, and a CDROM interface card.
FEATURES: A DAC for stereo digitizer voice output. An ADC for sampling in stereo. 16-bit digital audio playback. 12-bit digital audio recording. Up to 96db of dynamic range. MIDI interface. SONY CDU-31A CD-ROM or STANDARD SCSI interface.

SONY/CD ROM
Model SL CDU- 31A **249.00**

Volume purchasing call for price:

UNITED SOLUTIONS INC.
6382 Arizona Circle
Los Angeles, CA 90045
National Distributor: D&H

Sales: 1(800)653-0001
Tel: (310)645-3232
Fax: (310)645-0044
Sales: 1(800)877-1200

COMING SOON CONCORD

ComTek Computer

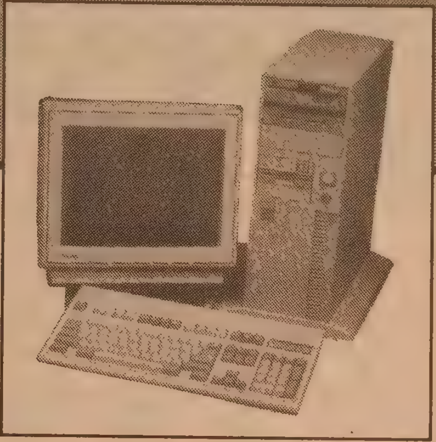
VISA MasterCard

SALE! 386/33MHZ/128K $169

SELF SERVICE CENTERS

COMPLETE SYSTEMS or BUILD YOUR OWN!

- **Build your own computer and save!**
- **Upgrade and repair your own computer at our centers**
- **One year warranty on parts and labor**
- **We offer the best quality, best service and lowest price**



BASIC SYSTEMS

386SX-25/33 MHz	$245/279
386DX-33/40 MHz w/64K Cache	$525/329
486DX-33/50 MHz w/64K Cache	$599/759
LOCAL BUS 486DX 33 w/64K Cache	$629

BASIC SYSTEMS INCLUDE:

- Motherboard
- CPU
- 1 MB RAM
- 1:1 2HD/2FD Controller
- 1.2 or 1.44MB floppy drive
- Internal Clock/ Calendar
- Math Co-Processor Socket
- Case
- Power Supply
- 101-key keyboard
- Mini Tower

COMPUTER SYSTEM	IDE HARD DRIVE 80MB	120MB	210MB	SYSTEM CONFIGURATION
486DX66/128K	$1450	$1495	$1559	• 4MB RAM • 1.44 TEAC • 1.2 TEAC • Minitower • 200 w/PS • 101 Keyboard • IDE 2FD, 2HD • SVGA .28 Monitor • SVGA w/1MB • 2S, 1P, 1G
486DX50/128K	1339	1379	1439	
486DX33/128K	1195	1235	1299	
486DLC33/128K	995	1029	1099	
386DX40/128K	943	989	1039	
386DX33/128K	933	979	1029	

VESA LOCAL BUS

486DX33/256K

$1359

- 4MB RAM
- 130MB Maxtor Hard Drive
- SVGA Monitor .28dp
- VL Bus Video w/1MB
- 1.2 & 1.44 TEAC Floppy Drive
- VL Bus IDE Controller
- 2S, 1P, 1G
- Mini Tower Case
- 101-KeyKeyboard

486DX66............ .....$1629

486DX50.............$1529

MOTHERBOARD

486DX/66/256K EISA Local USA	$849
486DX/50/256K EISA Local USA	749
486DX/66/128K VL Bus	719
486DX/50/128K VL Bus	599
486DX/33/128K VL Bus	459
486DX/33/128K ISA	419
486DLC/33/128K	219

- 100% Financing with 90 Day Free Interest
- Accept Visa and Mastercard
- Price Subject to Change without Notice
- Dealer Inquiries Welcome
- Not Responsible for Typographical Errors
- Prices based on Cash Prices

MONITOR

SVGA (1024x768) .28	$259
SVGA (1024x768) .39	218
SVGA Viewsonic 4E	310
SVGA Viewsonic 5E	419
SVGA Non-Int .28	299
SVGA Viewsonic 6FS	575
SVGA Viewsonic 7	999
SVGA Sony 1604 .26	999
MAG 15F/17F	589/1099
NEC 3FG/4FG	649/749

VIDEOCARD

Trident 1MB	$59
Tseng ET4000	85
Fahrenheit	170
Diamond Stealth	225
VL BUS w/1MB Genoa	115
VL BUS w/2MB P9000 Air	429
VL BUS w/2MB P9000 Orchid	459
VL BUS ATI w/2MB	439

HARD DRIVES

40MB/80MB IDE	$135/175
120MB/170MB IDE	199/247
210MB/245MB IDE	279/299
340MB/425MB IDE	389/699
525MB/540MB IDE	869/899
540MB/1.2GB SCSI	925/1179

CONTROLLER

IDE w/IO (2S, 1P, 1G)	$22
IDE VL BUS	69
SCSI VL BUS AIR	295
SCSI VL BUS Bustek 545S	369
SCSI EISA Bustek	325
Bustek 32-bit SCSI	325

KEYBOARD

Lite on	$26
Keytronic USA	40
Maxi Switch	35
Omnikey 102/Ultra	68/99

MISCELLANEOUS

Mini Tower Case	$55
Medium Tower	85
Baby AT Case	79
Full Tower	113
Sound Blaster	95
Sound Blaster Pro Basic	159
CD ROM Toshiba 3401B	485
CD Software	CALL
1MB SIMM	33
4MB SIMM	135
1Mx36 SIMM 72 pins	149
2Mx36 SIMM 72 pins	275
Modem 2400 Baud	39
Fax/Modem 9600/2400	59
Microsoft Bus Mouse	69
Microsoft Serial Mouse	49
Printers	CALL

PALO ALTO

3527 El Camino Real
Palo Alto, CA 94306
(415) 424-8151

DUBLIN

6602 Dublin Blvd.
Dublin, CA 94568
(510) 803-1530

SAN BRUNO

1778 El Camino Real
San Bruno, CA 94066
(Between Millbrae & San Bruno Ave.)
(415) 225-0153
Open Sunday

SANTA CLARA

5029 Stevens Creek Blvd.
Santa Clara, CA 95051
(408) 249-4297
Open Sunday

MICROWORLD

2450 Dwight Way, Berkeley, CA 94703 (510) 845-2000
Come See Us At Our New Location at Dwight & Telegraph

ORCHID LOCAL BUS WITH FARENHEIT 1280D

2 floppies, 213 Hard Drive, .28 SVGA monitor, 4 megs RAM

Mouse Windows DOS 6 Faxmodem

$1895

MICROWORLD is a licensed ORCHID OEM.

Authorized Educational Dealer.

ORCHID

ORCHID VESA LOCAL BUS, W P/9000 VIDEO

2 floppies, 244 Hard Drive, .28 SVGA NI, 8 megs RAM, Mouse Windows DOS 6 Faxmodem

$2200

GIANT SOFTWARE LIQUIDATION
9000 *NEW* PROGRAMS 50% OFF, CASH OR CHECK ONLY
IBM, ATARI ST, AMIGA, MAC

Three reasons to buy from MICROWORLD, a full service discount computer outlet.

PRICE Our prices are always the lowest for good quality gear. We do it right the FIRST time! We are always at the low end of the price spectrum. Our FREE CLASS on DOS & Windows will get you up and running right away.

QUALITY You always get the best quality at MICROWORLD. We don't scrimp a few dollars to give you a cheaper system. For example we use Keytronics and Maxiswitch or Focus 2000 keyboards rather than El Cheapos. "High quality at low prices", is our motto. Your computer is made with the best value name brand components.

SERVICE If something breaks we fix it right away. 24 hour turn-around. And perhaps most important-WE SPEAK **ENGLISH!** Not computer mumbo jumbo, and not a foreign language. If you want to buy your computer from someone who understands your needs, we are the place for you. You will enjoy shopping at MICROWORLD.

High Quality 486

80486 33 mz/128k/213HD
2 floppies/ .28 dot pitch SVGA
Windows/Dos 6/Mouse
4 megs of RAM
101 kb
2 serial/1 parallel/1 game
2496 internal fax modem
1 meg Cirrus VGA Card
Medium tower/ Baby AT/ or Mini Tower
$1595

33mz/256k cache/213HD configured as above W/VESA Accelerated 1 meg Video Card **$1795**

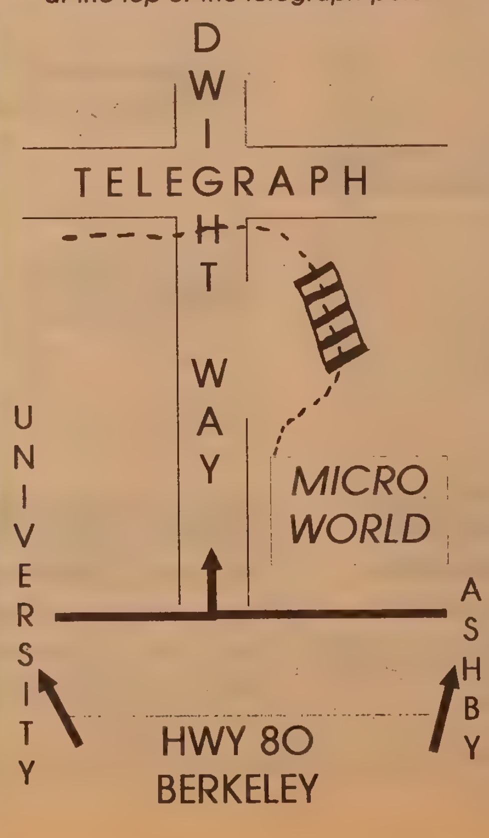
DX-2 VESA 66 mz/256k configured as above **$2095**

IDE VESA Controller **$70**

16 BITMULTI-MEDIA KIT PRO AUDIO AND NEC CD'S & SOUND BLASTER & CD PLAYER **$995**

PRO MEDIA SPECTRUM 16 BIT SOUND CARD W/SCSI **$195**

"at the top of the telegraph pole"



High Quality 386

80386 40 mz/64k/170HD
2 floppies/ .28 dot pitch SVGA
Windows/Dos 6/Mouse
4 megs of RAM
101 kb
2 serial/1 parallel/1 game
2496 internal fax modem
1 meg Cirrus SVGA Card
Medium tower/ Baby AT/ or Mini Tower
$1295

40 mz DX with 120 IDE HD configured as above **$1249**

33 mz DX 1 meg RAM
14" SVGA .28 color/ MSDOS 6
42 meg Hard Drive
1 floppy/101 keyboard
2 serial/1 parallel
$999

33 mz SX with 2 megs RAM with SVGA/1 floppy
84 meg Hard Drive
MSDOS w/42HD
$949

386-33, 1 meg,VGA,42 HD, DOS **$849**

Multi & Media beyond

Graphic Adventure Developers On The Edge

Authoring Systems Beating The Limitations Of CD-ROM

BY TONY REVEAUX

Scene from Iron Helix

Copyright © 1993 by Tony Reveaux. All rights reserved.

Tony Reveaux, a San Francisco-based consultant, is the editor of Computer Publicity News *and a contributing editor for* Artweek, *and writes the "MediaScan" column in* Film/TapeWorld. *He can be reached via Usenet (luna@well.sf.ca.us) or MCIMail 290-3008.*

"Click, Wait, and Watch." That description of the sluggish response of CD-ROM multimedia comes from none other than Marc Canter, the "father" of Macromedia Director. With his San Francisco-based Canter Technology, he is leaping right over CD-ROM and into the near future with the development of his Media Band, a system that will live out there in the interactive TV universe of 500 channels.

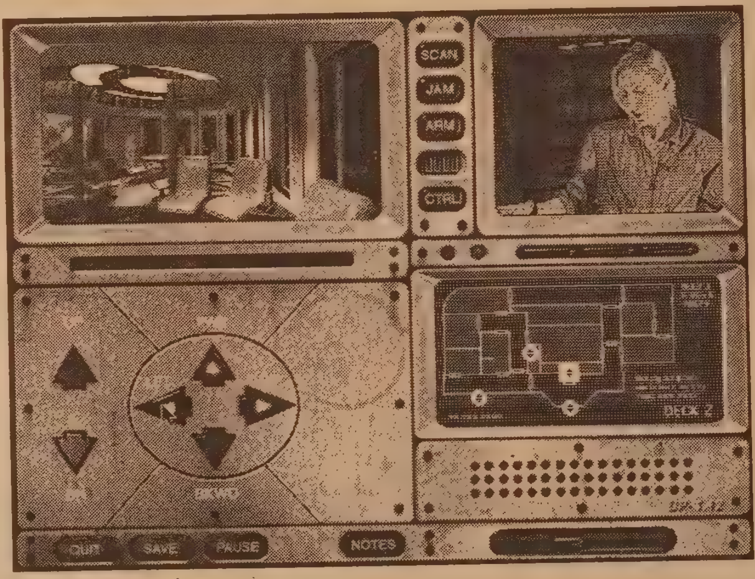
But, for the rest of us, CD-ROM will be an integral part of our multimedia world for a few more years yet.

According to a study by Dataquest, the average price of a CD-ROM player was $621 in 1991, is dropping to $225 in this year, and will plunge to $120 by 1996. There are over two million players out there now, and the curve will continue to rise exponentially.

CD-ROM has become the medium for multimedia. But the developers of CD-ROM-based graphic adventures—interactive multimedia titles that come close to giving the user a sense of being in a virtual reality movie—are pushing the abilities of multimedia authoring tools faster than the publishers can revise them.

Macromedia Director on the Macintosh continues to be the interactive authoring system of choice. Version 3.1 added the ability to import QuickTime movies as cast members, make QuickTime movies play back under interactive control, and export animation and sound as QuickTime movies; it also provided the ability to combine several QuickTime movies into one. Enhancements were also made to Lingo, Director's HyperTalk scripting language, for better memory management.

But Director had never dealt with the slow medium of CD-ROM, so these developers have had to learn new tricks in order to reach their creative goals.



Drew Pictures' authoring environment

> **Drew Huffman:**
> **"Our opinion here is that unless people begin making decent CD-ROMs, this market's never going to grow. We believe that CD-ROM is here for quite a few years so let's make the best of it. Developers have to grow up a bit and do a lot more homework when they are designing these games."**

REACTOR

When Chicago-based Reactor released Spaceship Warlock on Mac CD-ROM, it was making multimedia history. Created by Mike Saenz and Joe Sparks, and distributed by Educorp, this space opera defined the possibilities of cinematic graphic adventure on the desktop.

Now, Reactor is getting ready to release Screaming Metal, a more sophisticated science fiction hallucination of future shock. Mike Saenz, president and CEO of Reactor, declined to give details on the authoring system, but in the demonstration I saw, the data was streaming off the CD-ROM as fast and smooth as it would from magnetic disk. The slow wait times of Warlock have been left behind in this next generation of CD-ROM-ware.

"Warlock," said Saenz, "is definitely the best-selling CD-ROM for the Macintosh platform. Virtual Valerie was the best seller until Spaceship Warlock beat it." Now, Reactor is readying a Windows version of Spaceship Warlock for a third-quarter release, and will make a Windows version of Virtual Valerie 2 after the Macintosh version is completed.

"We've licensed Spaceship Warlock to Sony, for publication on the PlayStation," said Saenz. "But we are definitely not supporting 3DO.

"The reason we're passing on it is because while it definitely is a good piece of hardware—it's better than the existing game systems; it's better than the Nintendo, Genesis, or TurboGraphx 16; and it's better than a Sega CD—and for that reason it is attractive to many developers. It is not attractive to us because we're aware of a platform that is coming after 3DO, the PlayStation from Sony. We are actively licensing our products for that platform, and we are also going to be very active in developing for it because it is by far a better platform. 3DO starts to look to us like a very crude compromise, and we would prefer doing really high quality games, with a big name like Sony behind the platform."

CYBERFLIX

Lunicus, distributed by Educorp, is an action-packed arcade excursion framed within a science fiction graphic adventure. The realtime action of Lunicus maintains the player's involvement and keeps up the feeling of "being there." From his hillside studio in Tennessee, Bill Appleton, perhaps best known as the author of Silicon Beach's SuperCard, has set up his CyberFlix group to produce multimedia titles. He explains how he created his own authoring system that's independent of Macromedia Director.

"I've been working on the core operating system necessary to do interactive movies in a really serious fashion. We've got three different things that we're using.

"One, an interactive movie editor that lets us put buttons on movies, like QuickTime with buttons and scripting. It will switch back and forth between syncing sound to video and syncing video to sound on the fly.

"Two, the CyberPuppet editor, which lets us animate talking heads really quickly, and also output them as movies for insertion into movie sequences.

"Three, the virtual environment toolkit, which lets us do that real-time VR stuff, and also projects sprites into movies and lets us coordinate all those things.

"When we say interactive movies, we mean it literally—they are actually movies that you can interact with. It's all automated technology. It took about two years to write all the software, but Lunicus was done in just a few months.

"We can actually project moving com-

RESOURCES

Macromedia
600 Townsend
San Francisco, CA
94103
(415)442-0200

Educorp Computer Services
7434 Trade St.
San Diego, CA
92121
(619)536-9999

Canter Technology
(415)387-0400

Reactor, Inc.
445 West Erie
Chicago, IL 60610
(312)573-0800

CyberFlix
2309 Wagon Ln.
Knoxville, TN
37920
(615)573-8849

Drew Pictures
315 Franconia St.
San Francisco, CA
94110
(415)550-7651

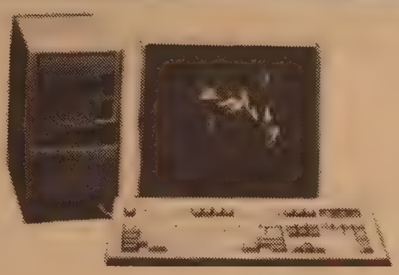
Pop Rocket, Inc.
181 Downey
San Francisco, CA
94117
(415)731-9112

Presto Studios, Inc.
P.O. Box 262535
San Diego, CA
92196-2535
(619)689-4895

Your Best Choice for Quality, Reliability and Service !

386/Sx33.....$275
386/Dx33.....$335
386/Dx40.....$345
486/Sx25.....$435
486/Sx33.....$515

486/Dx33.....$579
486/Dx50.....$749
486 Dx2/50..$689
486 Dx2/66..$839



Local Bus W/256k
486/Dx33.....$639
486/Dx50.....$759
486 Dx2/50..$729
486 Dx2/66..$879

Base Systems: Motherboard W/128k Cache, 1MB Ram, 1.44mb FDD, IDE I/O 2S/1P/1G, 101k Keyboard, Case & P/S
One Year Parts & Labor Warranty, For Other Option and Configuration Please Call

KFC Monitors

14" 1024 x 768 .39...........$220
14" 1024 x 768 .28.......$260
14" 1024 x 768 .28 NI...$285
14" 1024 x 768 .28 M...$385
15" 1280 x 1024 .28 NI
Flat, Digital Display $465
17"Flat .26mm
1280 x 1024 NI
$799

Hard Disk Drives

Conner 80mb.......$179
Conner 120mb...$209
Conner 170mb...$229
Conner 212mb...$299
Maxtor 130mb...$195
Maxtor 213mb...$269
Maxtor 340mb...$459
WD 340mb
$399

Misc.

IDE I/O 2S/1P/1G...$15
1.44mb Floppy.......$47
1.2mb Floppy $52
Serial Mouse..........$9
Mini Tower W/PS...$50
Trident W/1mb.......$57
Trident W/512........$43
Accumos W/256.....$29

SoftWare

ChosenLAN Single...$89
ChosenLAN 3Com...$249
PromiseLAN Dual....$89
PromiseLAN 2Com..$159
XTree Pro..............$49
WordPerfect for Win.$259
Dos 6.0................$55
Frame Maker 3.0
$399

CD-ROM & Multimedia Source

Panasonic CD-ROM
CR-522B............$255
CR-501 SCSI.......$329
CR-532 SCSI-II....$439

NEC CD-ROM
CDR84J-1 SCSI-II
280MS Multi-Spin
$449

Installation and
Setup of CD-ROM
$45

Sound Cards
Soundblaster Pro 16-Bit.....$255
Soundblaster Pro II...........$145
Media Vision PMI 16-Bit...$169

PMI Mini
Stereo Speakers
$15

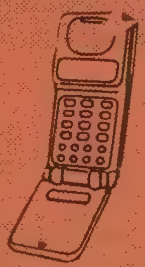
CD SOFTWARE TITLES YOUR CHOICE $29
Beauty & Beast, World Atlas, San Diego Zoo, Sherlock Holmes, Carmen Sandiego,Game Master, King's Quest, Chestmaster 3000 & etc

ABS Can Be a One-Stop Solution For You

We Sell, Rent and Repair Computers, Word Processors Typewriters & Fax Machines

Networking Specialist

Novell Network Design, Cabling, and Installation
Novell Authorized Certified NetWare Engineers
Hardware Configuration and System Inegration
Backup Service & Data Recovery
PC and Network: Repair/Upgrade - Onsite or Depot
24-Hour Coverage Available
Pick Up and Delivery Available



PAGER

5100N...........$99
Bravo............$119
Bravo/Clear....$129
Bravo Plus......$139
Bravo Express..$149

Includes Activation Fee
Plus 2 Months Airtime
and Battery

Cellular Phones

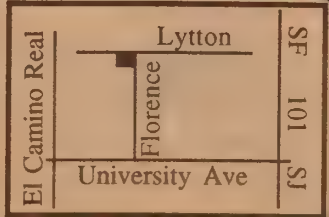
Motorola PC550.....$349
Motorola Lite base..$649
Motorola MC750....$269
Motorola MC420....$259
Motorola Ultra Clas.$334

CELLULARONE
Complete Line of Cellular
Phone & Accessory
OKI,Fujitsu,Panasonic

Automated Business Systems

Full Service Since 1967
400 Florence St, Palo Alto 415/324-0616 Fax 415/324-0653

M-F 9-6
Sat 10-4



puter controlled sprites and characters into the movie data stream. We're just getting started, and this is CyberFlix's 'Steamboat Willie.' A lot of the art and art direction was done by me, which was probably not the best of all possible worlds.

"I think that Lunicus has a level of playability that might be missing in some of the others. With some of these Directorware things, you end up waiting so long for things to happen that it breaks the suspension of disbelief. We already have Electric Image working with our automated system. So we're going to be able to fully upgrade our art to that level and keep the interactivity. I think that will be an important step for us.

"The really cool thing about Lunicus is it will run in 2 1/2 megs, and so it's really great for a color Classic or LC III—that's something that none of the others can do. What's also cool is if you have more RAM or more hard disk space, it totally takes advantage of everything you've got.

"The way that this thing was written is that I went to what a CD-ROM could do, and a Mac could do, and backward-engineered the title. Director was written in the early '80s, and so it doesn't really know anything about CD-ROMs; the same with SuperCard and HyperCard. So we've really got a different way of doing things."

DREW PICTURES

Iron Helix, distributed by Educorp, is a science fiction adventure of precise complexity that suffuses arcade action into a hunter-and-hunted race for survival. Drew Huffman, of San Francisco-based Drew Pictures, explains how his five-person team solved the CD-ROM speed challenge.

Cyberflix's Bill Appleton, author of SuperCard: "Director was written in the early '80s, and so it doesn't really know anything about CD-ROMs; the same with SuperCard and HyperCard. So we've really got a different way of doing things."

"The way we made Iron Helix work off of CD-ROM was—we started off by looking at Mac CD and at the available technology. We decided a set of features that would work, and that we would never, ever have to preload anything. So the whole game is streaming from disk. The only load that you ever make is the initial one when you load the 5MB shell into the RAM on your Mac. There's 500MB o files on the CD-ROM."

Director-based titles like Spaceship Warlock or Presto Studios' The Journeyman Project typically make you wait every time

ALL NEW!
4 Focused Conferences
- Open Operating Systems
- Interoperability
- Enterprise Networks
- Systems Integration

Conference Chairmen
George Schussel
Larry R. DeBoever

Special Plenary Address By:
Steve Ballmer

Over 200 Industry Experts:
Dave Andrews
Shaku Atre
Roger Burlton
Christine Comaford
Cheryl Currid
John Dunkle
Francis X. Dzubeck
Capers Jones
Ken Kousky
Doug Michels
Pieter Mimno
Ron Peri
Howard Rubin
Richard Schell
Jeffrey B. Tash
Will Zachmann

Plus...
A Power-Packed Exposition Featuring Over 200 Exhibits Representing the Future of Corporate Client/Server Computing with PCs, Lans and Servers

Industry Co-Sponsors:
Computer Associates Int'l
Computer Task Group
Covia Technologies
Digital Equipment Corp.
Hewlett-Packard
KnowledgeWare
Magic Software Enterprises
PeerLogic
Powersoft
Pyramid Technology
Sequent

Sponsored By:
DCI

A2ZQMK

The Most Vital and Comprehensive Event
For Anyone Involved in the Operating Systems
and Networks Arena

THE OPEN OPERATING SYSTEMS &
ENTERPRISE NETWORKS
CONFERENCE & EXPOSITION

OP/EN EXPO*

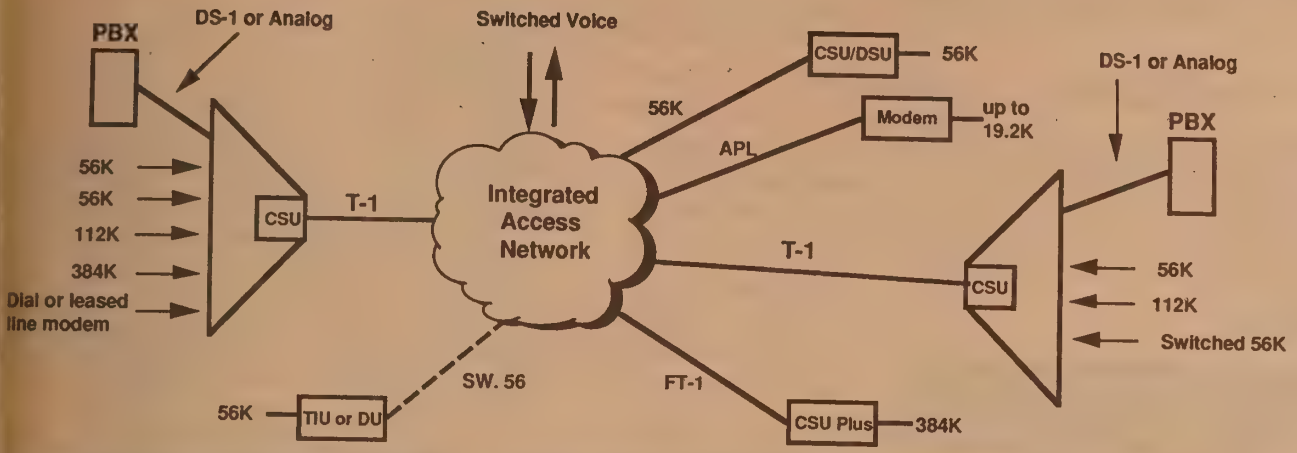
August 3-5, 1993
Santa Clara, CA

Call (508) 470-3880 to register or to receive an information-packed conference brochure.

SPECIAL BONUS
Attend Downsizing EXPO-Rightsizing Your Computer Systems-Running Concurrent to OP/EN EXPO

NAC Knows NETWORKS!

Single Vendor Solution



PBX
DS-1 or Analog
56K
56K
112K
384K
Dial or leased line modem
CSU
T-1
Switched Voice
Integrated Access Network
56K
CSU/DSU
56K
APL
Modem
up to 19.2K
DS-1 or Analog
PBX
T-1
CSU
56K
112K
Switched 56K
SW. 56
56K
TIU or DU
FT-1
CSU Plus
384K

COMPAQ File Server

You need a real file server!

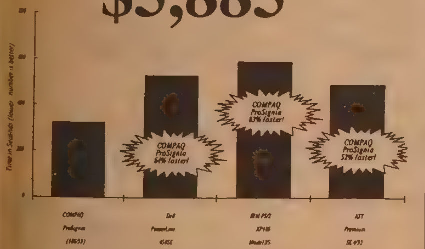
A personal computer steroided with a large chassis, big drives, rich memory, and multiple cards is still a "personal" computer. To be used as a network file server, it can function but hardly produce. Architectures are different. Compaq has the real server, so you know, but you also doubt if it's for you...

Think you can't afford a Compaq server?

Think again.

- 486/33 EISA, 24M
- Compaq Fast SCSI-2 host adapter
- Compaq Netflex 32-bit EISA NIC
- 3-year on-site service for the above items
- 1G SCSI-2 hard disk (12ms)
- VGA monochrome monitor
- Fully installed with NetWare and tested

$5,885



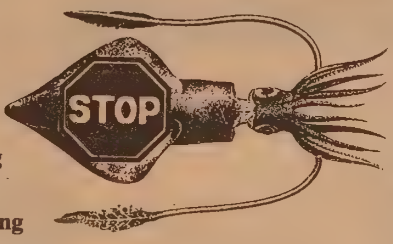
WE EASE YOUR CONNECTIVITY

PLATFORM	PROTOCOL	TRANSMISSION
PC/DOS WINDOWS	NETWARE/IPX	TOKEN RING
MACINTOSH	TCP/IP	FDDI
IBM RS6000	NFS	T1/FT1/Switched 56K
DEC VAX	X-WINDOW	FRAME RELAY
DEC RISC	DEC PATHWORKS	ISDN
SPARC SUN-OS	APPLETALK	DIAL-UP

NAC is authorized by the following system vendors:
IBM RS6000, DEC VAX/RISC, AXIL, COMPAQ, HP, APPLE

YOU NEED STRONG HANDS ....Not finger pointing

- Enterprise Network Design
- Cabling System Design
- System Administration
- System Management
- Equipment Installation
- Application Installation
- Cable Installation
- System Administration Training
- Application Software Training
- Network System Trouble-Shooting
- On-Site Hardware Trouble-Shooting
- Telephone Support
- Maintenance Contract
- Carry-In Hardware Repair



NAC Engineering & Service Department is composed of veterans in UNIX, Windows, Macintosh, WAN, and a group of CNEs.

$$We Save You Money$$

NetWare 4.0 is here!

Novell Gold Authorized Reseller

NetWare 4.0, 25 User	$3,275
NetWare 3.11, 20 User	$1,765

Upgrade to 3.11 now and receive 4.0 for only $300!

UNIX for PCs

FTP (B)	$457
SUN-PC/NFS (B)	$476
TCP Kernel	$90
Hummingbird eXceed/W	$411
XVision	$364

UNIX for MACs

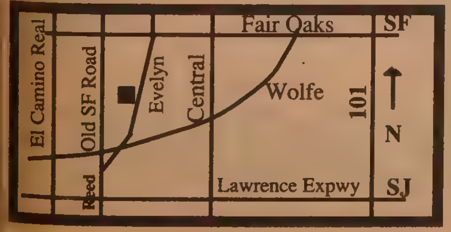
TCP/IP (B)	$411
NFS (B)	$407
TCP/IP + NFS (B)	$645
Apple MacX	$280

(B) Price includes Ethernet Card & SW

NW Cards & Equipment

3COM Etherlink III Coax	$145
3COM Etherlink III TP	$143
SMC Ethercard Elite 16 Coax	$145
SMC Ethercard Elite 16 TP	$143
Asante Ethernet Card	$195
Dayna Etherprint	$380
Intel NetPort II	$575
Arcnet Kit w/AI or NW Lite	$290
Ether Kit w/AI or NW Lite	$390
Ext. Ethernet Pocket Adapter	$215
1000' Cable	$200
AMP BNC Male Conn (10-P)	$30
15' or 25' assembled cable	$20
IBM T.R. Patch Cable 8'	$18
Transceiver 10Base T	$85
Transceiver BNC	$89
Transceiver Cable 3'	$32
10Base T 9-Port Hub	$285
10Base T 18-Port Hub	$565
2-Port Ethernet Repeater	$535
4-Port Ethernet Repeater	$795

LANtastic™ ARTISOFT INC. DAVID SYSTEM COMPAQ WOLLONGONG FTP NOVELL digital™ Microsoft IBM Business Partner HEWLETT PACKARD Authorized Dealer intel Authorized Dealer SMC SCO THE SANTA CRUZ OPERATION 3Com



Fair Oaks
SF
El Camino Real
Old SF Road
Evelyn
Central
Wolfe
101
N
Reed
Lawrence Expwy
SJ

Network Associates Corporation

(408) 733-2600 ext 333

FAX (408) 733-4268
720 E. Evelyn Ave., Sunnyvale, CA 94086-6526

Not responsible for typographic errors. Subject to stock on hand. Prices subject to change

YOU DESERVE
THE BEST . . .
The BEST Selection, BEST Quality,
BEST Service, BEST Price

PC Professional, Inc.

Serving the entire Bay Area
since 1981

The authorized Digital Dealer
SALES AND SERVICE
PC Professional, Inc. offers a complete line of Digital products

Dec LP	Dec ST	Dec MT	Dec Notebook
• 333sx LP • 425sx LP • 433sx LP • 433dx LP • 450d2 LP • 466d2 LP	• 433 ST • 450 ST • 452 ST • 466 ST Call	• 433dx MT • 450d2 MT • 466d2 MT Call	• 425 SL • 425 SLC • 325 SL • 325 SLC Call

FREE Windows, DOS & Mouse

Dec

Specials! Savings!!

Digital offers:
- Certified compliant with ISO 9000
- Novell certified
- Upgradeability to Intel's newest technology
- Video technology, GUI acceleration
- Monitors are rated at 72 HZ to reduce eye strain (ergonomics)
- ISA & EISA are not proprietary
- On-site support-guaranteed response
- 40,000 service employees (in more than 80 countries)
- On-line help desk
- Temperature sensitive fan makes Digital's desktops very quiet

digital™

PC Professional guarantees:
Digital Power, Quality, Service & Support
Combined with PC Professional's -
• Consulting & design, integration, training, delivery,
• install, loaners, phone support, 4-8 hour response,
• warranty & non-warranty repair, service dept, service contracts

The Full Service Source for All Your Computer Needs!

PC Professional, Inc.
1900 Webster St., Suite B, Oakland 94612
510/465-5700
FAX: (510) 465-8327

MultiMedia & beyond

you select a new sequence or make a transition. "Every time they want to load a new world or bring in a new thing," said Huffman, "there are a couple of hundred megabytes of 'things' out there that they have to get at to make the game work. And then they load them into RAM and then use them. Whereas we designed ever single bit of the game so that it's all streaming from disk; we also coordinated a small buffer on the hard disk with files on the CD. Basically the way that we acces the stuff that's on the CD is extremely organized. We simply copy the files ont the CD (in the mastering) in exactly the right orders—they just stack on top o each other.

"The vast majority of them are Paco Producer files [from COSA, The Compan of Science and Art, in Providence, RI]. We get a much better frame rate from Paco and use QuickTime extensively in developing the game. We use Adobe Premier for the editing of QuickTime sequences, adding sound tracks, but—ultimately fo playback—we converted everything into Paco. Essentially all of the sync that wa built into the QuickTime movie will then be built into the Paco movie.

"Vinnie Carella and Phill Simon did all of the live action video sequences, an there's a lot of special effects that simulate electrostatic interference, and other that are combinations of transitions that they finessed. The frame rate is 5- frames-per-second.

"There's actually more than three thousand little movies in Iron Helix an those are seamless visually, but they don't have soundtracks; the soundtracks ar accessed separately. We have AIFF sound files on hard disk, and we have Paco file on CD-ROM. So the read head is going out there in a very organized fashio accessing the correct video image for your navigation movie." (That's where yo can interact within the screen space and move left, forward, right, and in reverse

MONITOR REPAIRS
$55 Monitor Repairs plus parts
$40 Monitor Alignment & Adjustment
COMPUTER MAINTENANCE
Are you aware that computers require preventive maintenance?
•Floppy Drives cleaned and aligned
•Hard Drive virus inspection and repair
•Hard Drive optimization
•System vacuumed and cleaned
•QA plus system inspection
•Report on potential problems
$40 SPECIAL PRICE per system
We have been repairing computers for over 10 years
SPECIAL DEALER DISCOUNTS
BACKYARD COMPUTER SERVICES
(510) 689-3733

Tell Them
You saw it
in
MICROTIMES

Call the Quality Leader

Lifetime Labor & 1 Year Parts Warranty

We Use The Finest "Made in the USA" Motherboards

FREE 2-Hour Software Installation on all systems.
FREE labor on upgrades on all of our systems for 5 years.

Micronics VESA Local Bus System

8MB RAM/ 200MB Local Bus System

MICRONICS
Computer, Inc.

- Micronics VESA Local Bus 486 Motherboard
- Socket for Intel's overdrive chip
- 8MB RAM (Expandable to 64MB on board)
- VESA Local Bus 2FD/2HD IDE Controller Card
- 213MB Maxtor 15ms IDE Hard Drive
- Diamond Stealth/24 or Orchid 1280 VESA Local Bus w/1MB
- Viewsonic 6e Non-Interlaced Monitor 14"
- Teac 1.2MB 5.25" Floppy Drive
- Teac 1.44MB 3.5" Floppy Drive
- 2 Serial/1Parallel I/O Ports
- Maxiswitch or Focus 101-key Keyboard
- GT-300 Deluxe Full Tower w/Dual Fan & 300W P.S.
- DOS 6.0 w/Manuals
- Windows 3.1 w/Manuals
- Logitech Dexxa Mouse

EISA/VESA Motherboard ADD $250

486DX2-66/256K	$2455
486DX-33/256K	$2195
486SX-25/256K	$1895

UPGRADE	Ultrastor 34F VLB SCSI + HD	ATI Ultra Pro VLB/1MB	Maxtor 340MB	Maxtor 545MB	16MB RAM
ADD	$295	$150	$200	$550	$300
UPGRADE	Viewsonic 6FS 15"	Viewsonic 15 15"	NEC 4FG 15"	Viewsonic 7 17"	NC 5FG 17"
ADD	$200	$310	$415	$640	$1100

ARADINE QUALITY & SERVICE

- Lifetime Labor / 1 Year Parts Warranty
- Free Labor on Upgrades
- Loaner Monitors Given During Monitor Repairs
- 2 Hour Free Software Installation
- All New Components
- High Quality Name Brand Parts
- The First To Offer Local Bus Technology Over 2 Years Ago
- Knowledgeable Sales/Technical Staff That Stands Behind Every System We Build
- Paradine Gives You The Best Service in The Business

Nice VESA Local Bus System

8MB RAM/ 200MB Local Bus System

NICE
Made in USA

- NICE VESA Local Bus 486 Motherboard
- 8MB RAM (Expandable to 32MB on board)
- VESA Local Bus 2FD/2HD IDE Controller Card
- 213MB Maxtor 15ms IDE Hard Drive
- Diamond Stealth/24 or Orchid 1280 VESA Local Bus w/1MB
- Viewsonic 6e Non-Interlaced Monitor 14"
- Teac 1.2MB 5.25" Floppy Drive
- Teac 1.44MB 3.5" Floppy Drive
- 2 Serial/1Parallel I/O Ports
- Maxiswitch or Focus 101-key Keyboard
- GT-300 Deluxe Full Tower w/Dual Fan & 300W P.S.
- DOS 6.0 w/Manuals
- Windows 3.1 w/Manuals
- Logitech Dexxa Mouse

MINI-EISA/VESA Motherboard ADD $100

486DX2-66/256K	$2295
486DX-50/256K	$2195
486DX-33/256K	$2045

UPGRADE	Ultrastor 34F VLB SCSI + HD	ATI Ultra Pro VLB/1MB	Maxtor 340MB	Maxtor 545MB	16MB RAM
ADD	$295	$150	$200	$550	$300
UPGRADE	Viewsonic 6FS 15"	Viewsonic 15 15"	NEC 4FG 15"	Viewsonic 7 17"	NC 5FG 17"
ADD	$200	$310	$415	$640	$1100

radine 486 VESA Local Bus Systems

- ntel 486 CPU
- if Socket For Pentium Upgrade
- 28K Cache (Expandable to 256K)
- MB RAM 70ns (expandable to 32MB)
- 2-Bit VESA LB 2FD/2HD IDE Controller Card
- **13MB Maxtor IDE Hard Drive**
- tandard Technology 14" SVGA .28 NI Monitor
- rchid F1280/VLB or Diamond Speedstar
- ro VLB SVGA Card w/1MB
- eac 1.2MB & 1.44MB Floppies
- Serial, 1 Parallel, 1 Game I/O Ports
- ocus or Maxiswitch 101-Key Keyboard
- id Tower Desk Top Case
- /250W Power Supply
- ogitech Dexxa Mouse

SX-25	486DX-33	486DX-50	486DX2-66
420	$1595	$1715	$1795

Paradine 486 ISA Systems

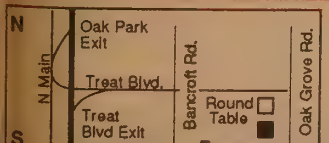
- Intel 486 CPU
- Zif Socket For Pentium Upgrade
- 128K Cache (Expandable to 256K)
- 4MB RAM 70ns (expandable to 32MB)
- 2FD/2HD IDE Controller Card
- 130MB Maxtor IDE Hard Drive
- Standard Technology 14" SVGA .28 Monitor
- **Standard Technology Windows Accelerated 16.7M Color SVGA Card w/1MB**
- Teac 1.2 MB &1.44 MB Floppies
- 2 Serial, 1 Parallel, 1 Game I/O Ports
- Focus or Maxiswitch 101-Key Keyboard
- Mid Tower Desk Top Case w/250W Power Supply
- Logitech Dexxa Mouse

486SX-25	486DX-33	486DX-50	486DX2-66
$1169	$1345	$1475	$1550

Paradine 386 ISA Systems

- Intel 386DX CPU
- 128K Cache (Expandable to 256K)
- 4MB RAM 70ns (expandable to 32MB)
- 2FD/2HD IDE Controller Card
- 130MB Maxtor IDE Hard Drive
- Standard Technology 14" SVGA .28 Monitor
- **Standard Technology Windows Accelerated 16.7M Color SVGA Card w/1MB**
- Teac 1.2MB OR 1.44MB Floppy
- 2 Serial, 1 Parallel, 1 Game I/O Ports
- Focus or Maxiswitch 101-Key Keyboard
- Mid Tower or Desk Top Case w/250W Power Supply
- Logitech Dexxa Mouse

386DX-33	386DX-40
$1035	$1045



Note South Bound 680 Customers:
Exit Oak Park left on N Main,
left onto Treat Blvd 3 Miles from 680

PCS
PARADINE

PARADINE
COMPUTER SYSTEMS

Oak Grove Plaza Annex • 2958 Treat Blvd., Suite A • Concord, CA 94518

Hours:
Mon-Fri 9:30-7:00
Sat 10:00-5:00

No Surcharge

Call the Quality Leader
(510) 825-6068
Fax: (510) 825-5940
BBS: (510) 825-0997
Leasing/Financing Available.
Prices subject to change without notice.
Not responsible for typographical errors.

MultiMedia & beyond

"In developing Iron Helix, we've already gotten some ideas where we can bring that 5MB shell on the hard disk down to about 1MB, or maybe even a half a megabyte for a future production. We will continue to design for a 150K-per-second standard. If someone designs for a 300K-per-second drive, like the new double-speed drives, life becomes much, much easier. Trouble is, that also reduces the potential market since the installed base is still single-speed. Iron Helix plays very well on a Quadra with lots of memory. It plays almost exactly the same quality of performance on a Mac Color Classic, and no other ROM has been able to come even close to that.

"Iron Helix was modeled in Swivel-3D, in MacroModel; the rendering was Electric Im
age Animation System. Adobe Photoshop wa
used extensively for everything from textur
map creation to image compositing, even t
sequence edit, because we would stack u
whole sequences in Photoshop as filmstrips
All of these tools were completely integrated

"There's different pieces that every too
does well. Everything in the Mac authorin
environment is so incredibly compatible. W
have a programmer working for us on a P
version of Iron Helix. The core team here
just beginning to get into the PC learnin
curve. Fortunately for us we have a program
mer who is world class. We're not producin
in the PC; we're just porting the Mac files ove
to the PC.

"Our opinion here is that unless peop
begin making decent CD-ROMs, this market
never going to grow. So if we can help oth
people make good CD-ROMs that's fine wi
us. We'll tell 'em what we did. We only ho
that they'll be as open with their secret
That's an attitude we actually picked up fro
Joe Sparks. We believe that CD-ROM is he
for quite a few years so let's make the best
it. Developers have to grow up a bit and do
lot more homework when they are designi
these games."

POP ROCKET

Joe Sparks, a coauthor of the classic Spac
ship Warlock, is completing Total Distortio
distributed by Educorp, a unique CD-RO
that will present a fantastic adventure allo
ing you to become a rock star.

From his San Francisco-based Pop Rock
studio, Sparks has had a lot of time to stu
the strengths and limitations of Direct
"We're distributing loads as much as p
sible. There's also something you can do no
especially in today's Director, that could ma
Spaceship Warlock much faster now, ev
though if you compare it to Journeyman,
much faster.

"In Journeyman, I haven't been able
figure out what they're doing that makes i
slow. The files are smaller than Warlock a
the active window size is smaller than W
lock. I think that what makes it slower is t
interface loading and reloading, and pre
ration for inventory, and things like that.

"One thing that Lunicus and Iron H
rely on is moving five megs or more of stu
your hard drive at a time, so you do hav
tradeoff there. What I'm doing with T
Distortion is simply trying to distribute lo
as much as possible and use whatever me

LOOK NO FURTHER. . .

We Have Everything You're Looking For—Call And Be Amazed!

PORTABLE COMPUTER CENTER

WE ARE ABLE TO CUSTOM BUILD ANY DESKTOP CONFIGURATIONS INTO OUR PORTABLES TO SUIT YOUR NEED. PLEASE CALL FOR OPTIONS LIKE INTERNAL CD ROM, TAPE BACK-UP SYSTEM, UP TO ONE GIGABYTE IDE, ESDI OR SCSI HARD DISKS.

HI CONTRAST VGA PLASMA PORTABLE
- 4 MB Memory (Expandable To 32 MB)
- 1.2 MB & 1.44 MB Floppy Disk
- **120 MB IDE Hard Disk***
- SVGA Card w/1 MB
- 2 Serial/Parallel Ports
- 200 Watt PS / 110/220 V
- Plasma Display On/Off Switch
- External Display Up To (1280x1024)
- 2 Full / 1 Half Length Slots Free
- Deluxe Carrying Case

150:1 RATIO 101 KEY

486DX2-66 w/256K Cache	**$2595**
486DX-50 w/256K Cache	**2445**
486DX-33 w/256K Cache	**2295**
386DX-40 w/64K Cache	**1995**

SUPER VGA COLOR CRT PORTABLE
- 4 MB RAM (Up To 32 MB)
- **120 MB IDE Hard Disk***
- All-Media 1.2 & 1.44 Floppy
- 2 Serial/Parallel Ports
- 3 Drive Bays
- 5 16 Bit Slots
- SVGA Card w/1 MB (32K Colors)
- Carrying Case

9.5" 1024x768 101 Keys

486DX2-66 MHz 256K Cache	**$2695**
486DX-50 MHz 256K Cache	**2575**
486DX-33 MHz 256K Cache	**2445**
386DX-40 MHz 128K Cache	**2095**
386SX-33 MHz	**2045**

★ BOTH PORTABLES ARE AVAILABLE IN EISA & LOCAL BUS ★

STORAGE SYSTEM LCD PORTABLE LUNCH BOX PC

(Looks Like and Has Same Configuration As The Plasma Above)

Case Only	**$745**
486DX2-66 MHz w/256K Cache	**2145**
486DX-50 MHz w/256K Cache	**1995**
486DX-33 MHz w/256K Cache	**1845**
386DX-33 MHz w/128K Cache	**1545**

STORAGE SYSTEM ALL-IN-ONE PC SVGA 386SX-25 MHz

$1295
- 1 MB RAM Up To 16 MB
- 1.44 MB F.D. (Option Ext 1.2)
- 40 MB H.D. Up To 340 MB
- 16 Bit SVGA Video/101 Keyboard
- 2 Serial/1 Parallel • Carrying Bag
- Two 16-Bit Expansion Slots

DESKTOP SYSTEM MONTHLY SPECIAL

486DX-66/50/33 (LOCAL BUS)	$CALL
486DX2-66 w/128K Cache	1445
486DX-50 w/128K Cache	1345
486DX-33 w/128K Cache	1195
486DX-25 w/128K Cache	1075
386DX-40 w/128K Cache	945
386SX-33 MHz	895

ALL SYSTEMS ABOVE INCLUDE:
- 4 MB RAM (70ns)
- 130 MB Hard Drive 16ms
- Teac 1.2 MB & 1.44 MB Floppy
- SVGA Monitor (1024x768 .28 dpi)
- SVGA Video Card w/1 MB
- IDE 2HD/2FD Controller
- 2 Serial/Parallel/Game Port
- Enhanced 101 Keyboard
- Mini Tower or Desktop Case

★ **FREE 3 Button Mouse & Gift**

MultiMedia Upgrade Kit **$415**

★ Panasonic CD-ROM Drive
★ Gallant Sound Card
★ A Pair of Speakers & Microphone
★ Six Hot CD Titles

PLEASE CALL FOR:
★ Other Configurations
★ System Upgrade/Repair
★ Hardware/Software Installation

CONTROLLER & ADD-ON CARDS

Adaptec 1542B/1542BK	$210/225
DTC 320 SCSI Controller	95
Bustek BT542BK SCSI	145
IDE Controller VLB 32 Bit	75
IDE Intelligent VLB 32-Bit	75
IDE Intelligent Controller 4 F. Disk	45

MONITORS

SVGA (1024x768 .28mm)	$245
SVGA (1024x768 .28mm) Non-Inter.	285
SVGA 15" (1280x1024) Non-Inter.	450
NEC 3FGX 15" (1280x1024) N/I	625
NEC 5FGE 17" (1024x768) N/I	1095
NEC 5FG 17" (1280x1024) N/I	1395

VIDEO CARDS

Diamond Speedstar Pro 24 Bit	$129
Diamond Speedstar Pro VLB	129
Diamond Stealth ISA 24 Bit	159
Diamond Stealth VLB 24 Bit	159
Genoa 8500 VLB 32 Bit	115
ATI Ultra Pro 1 MB (OEM)	245

FAX MODEM/MICE

144/144 Fax Modem Int Winfax	$175
96/24 Fax/Modem	59
96/24 Fax/Modem for Windows	69
96 Send Fax/2400 Modem	35
Logitech Mouseman Ser/Bus	65
Logitech Cordless Mouse	84

DRIVES

NEC CD-ROM CDC-84 Int.	$535
Toshiba CD-ROM XM3401B	475
Conner 170 MB w/5 Software	290
W. Digital 340 MB H. Disk	365
Maxtor 245 MB IDE H Disk	275
Maxtor 213 MB IDE H Disk	260
Maxtor 130 MB IDE H Disk	199
Connor 120 MB IDE H Disk	179
Colorado 250 MB Tape Drive	215
Colorado 120 MB Tape Drive	155

Prices subject to change w/o notice

Dealer Pricing & Quantity Pricing Available

STORAGE SYSTEM ENGINEERING SERVICE

3350 Scott Blvd., Building 19, Suite 1902
(near Bowers Ave.)
Santa Clara, CA 95054

(408) 727-6040

Your Source For Reliable Computers & Peripherals Since 1983

S.F. Lawrence Expwy. S.F. Central Expwy. Scott Blvd. Bowers San Tomas 101 N S S.J. S.J.

FAX: (408) 727-6042
Hours: 10am-6:30pm M-F
12noon-4:00pm Sat

BRAND NAME TECHNOLOGY

TOSHIBA GREAT PRICES SINCE 1983! **HEWLETT PACKARD** *Authorized Dealer*

MOTHERBOARDS

MICRONICS 486-66 VL BUS WITH CPU	$1025
MICRONICS 486-33 VL BUS WITH CPU	775
486DX-66 VL BUS WITH CPU	739
486DX-33 VL BUS WITH CPU	499
486DX-66 WITH CPU	679
486DX-33 WITH CPU	449
386DX-40 WITH CPU	179
386SX-40 WITH CPU	125

VIDEO CARDS

Monochrome Card	$19
VGA Card 256K	35
Trident 512K, SVGA	49
Trident 1MB, SVGA	69
Diamond Stealth 1MB, SVGA	179
Genoa VL Bus, 1MB, SVGA	149
Diamond Stealth VL BUS 1MB	179
ATI Mach32, VL BUS 1MB	369
Diamond Viper, VL Bus 2MB	469

HARD DISK CONTROLLERS

IDE/Floppy Card	$15
IDE with I/O	25
IDE with I/O VL Bus	79
I/O Card 2 Serial /1 Parallel	19
AT MFM Card	49
Adaptec SCSI 1522	169
Adaptec 1542 B+	339
Ultrastor 14F SCSI	229
Ulrastor 34F VL Bus SCSI	299
Trantor Parallel to SCSI	119
Trantor Parallel to SCSI Plus	179

DRIVES

Teac 1.2MB Floppy	$58
Teac 1.44 Floppy	53
Teac Combo 1.2MB & 1.44MB Floppy	139
40MB IDE	129
80MB IDE	179
120MB IDE	209
213MB IDE	289
340MB IDE	449
520MB IDE	875
80MB SCSI	229
120MB SCSI	259
213MB SCSI	349
340MB SCSI	579
520MB SCSI	875
877MB SCSI	1025
1.2 GB SCSI	1299

QUALITY CASES

Baby AT Desktop, UL	$79
Mini Tower, UL	75
Medium Tower, UL	95
Full Tower, UL	99

MONITORS

Mono Amber	$99
VGA White 14"	129
SVGA .39mm 1024x768	235
SVGA .28mm 1024x768	285
SVGA .28mm 1024x768 Non-Int	335
Viewsonic 6FS 15"	565
Viewsonic 7	1099
NEC 4FG	749
NEC 5FG	1399
NEC 6FG	2399
SONY 1604S	1024
Standard Tech 17"	749

MEMORY SIMMS

1 MBx9-70 (3 chips)	$39
4 MBx9-70	149
16 MBx9-70	675
1 MBx8-70	39
4 MBx8-70	139
16 MBx8-70	630

72 PIN SIMMS

2 MB-70ns	$99
4 MB-70ns	169
8 MB-70ns	325
16 MB-70ns	649

INTEL CPUs

386DX/33	$79
486DX/33	329
486DX/50 or DX2-50	459
486DX2/66	559

MATH COPROCESSORS

SX25/33	$69/79
387DX/33	79
387DX/40	89

MEMORY FOR PRINTERS

HP II/III 2MB/4MB	$109/179
HP IV/IIIsi 4MB	169
OKI 400 2MB	129
Panasonic 4420/4450i	129
Epson Action Laser II/8000, 2MB	129
NEC Model 95, 2MB	129

SPECIAL MEMORY MODULES

Toshiba 4400/C, 16 MB Card	$699
Toshiba Others	CALL
Compaq 286N, 386N 4MB Module	169
Compaq, Others	CALL
AST 4MB WPB SIMM	169
AST, Others	CALL
IBM 55SX/70 2MB Module	99
IBM, Others	CALL

FAX/MODEMS

Fax Modem 96/24 Internal	$59
Fax Modem 96/24 External	109
Hayes 2400 Int ACURA	79
Hayes 2400 Ext ACURA MAC/IBM	99
US Robotics 14.4 Fax/Modem Int	199
US Robotics 14.4 Fax/Modem Ext	225

NETWORKING

Ethernet 10Base T 16 Bit Card	$85
Ethernet Coax 16 Bit Card	89
SMC Ethernet 16 Bit Card	125
Ethernet 10Base T Hub 8 Port	249
Pocket Ethernet Adapter	199
Token Ring Adapters	CALL
Mac Ethernet Cards	175
Lantastic Software & Cards	CALL
Network Cables, Connectors	CALL

PRINTERS/SCANNERS

HP LaserJet 4L	$729
HP LaserJet 4/4M	1399/1899
HP DeskJet 500	379
OKI Laser 400	579
NEC Model 95	1349
OKIDATA 380	239
Panasonic 2123	239
QMS 410	1399
QMS 860	3895
HP ScanJet IIP	749
HP SanJet IIC	1395
Mustek Handheld 256 Grey Scale Scanner	149

TONERS/SUPPLIES

HP IIP/IIIP Toner	$79
HP II/III/IIID Toner	89
HP IV Toner	109
HP IIIsi Toner	119
OKI 400/800 Toner	33
OKI Laserline 6 Toner	25
NEC Model 95 Toner	189
Toshiba Pagelaser, Kyocera, Epson, Panasonic	CALL
HP DeskJet Cartridge	19.95
Diconix/HP ThinkJet Cartridge	11.95

SPECIAL ORDERS On All Toners & Ribbons Accepted!

RIBBONS

APPLE, CITIZEN, EPSON, OKIDATA, STAR, IBM, PANASONIC, TOSHIBA PRINTERS

REMOVABLE MEDIA

Colorado 120MB Int. Tape B/U	$179
Colorado 250MB Int. Tape B/U	229
Colorado 120MB Trakker /Parallel Port	379
Colorado 250MB Trakker/Parallel Port	439
SyQuest Ext. 44MB MAC	419
SyQuest Ext. 88MB MAC	519
SyQuest Ext. 44/88MB MAC	599
Iomega 21MB Floptical Int.	449
Bernoulli Mutidisk 150MB	849
NEC CDR 84 CD ROM	539
NEC CDR 74 CD ROM Ext	625
Toshiba XM-3401B CD ROM	625

NOTEBOOKS & ACCESSORIES

Toshiba 1850, 80MB Bundle	$1649
Toshiba 4400C, 200MB	4350
Toshiba Others	CALL
Laptop, Parallel to SCSI Converter	119
Laptop Carrying Case	55
Laptop Tape Back Up 120/250MB	379/439
Laptop Ext. Hard disks	CALL
Laptop Scanner	249
Laptop Ethernet Adapter	199
Laptop Pocket Fax/Modem	129
Laptop Printer	299

ACCESSORIES/SOFTWARE/MISC

Mouse	$15
Dexxa Mouse	25
Keytronic Mouse	29
PS/2 Mouse	59
Mitsumi 101 Keyboard	35
Keytronic 101 Keyboard	45
CPU Heatsink Fan	25
ALL Software Available	CALL

Monarch Computers

863-B San Pablo Ave.
Albany, CA 94706
Hours: M-F 9:30am to 6:00pm
Sat 10-5

(510) 526-7741

Fax (510) 526-7859

Prices subject to change without notice.
Not responsible for typographic errors

Full Desktop & Copying Services Available

ods are available—QuickTime, AIFF sound files that spool from the disk rather than unloading all at once, and just finding the fastest ways to load graphics. Our screen in Total Distortion is not a small active window, as in Iron Helix or Lunicus; ours is a full 12" size screen. That has some tradeoff in speed, but the results we're getting are much faster than Warlock for showing more and more animation. The main thing is just lots of custom case-by-case optimization. We're using Director, where you have complete control of when and what is loaded in any given time."

DIRECTOR: THE WISH LIST

Says Drew Pictures' Huffman, "We use Director as an interactive control shell, and it's very good for that. Once in a while we use it really quickly for hard-edge database composites, because if that's all you're doing, then Director is blindingly fast.

"It's getting so complex at this point. I don't think it's a good idea to try to make one program that does everything. I would like to see the graphic production tools get more powerful and I would like to see the interactive tools in Director get more powerful. Like update only certain areas of the screen."

Adds Pop Rocket's Sparks: "There are some things that I wish Director had that it doesn't, that I have kind of written around. There are certain performance things that can go awry with Director that you can cure. If you fill RAM up to maximum capacity, Director's own autoload and flush features can get really slow when there's no flexibility in RAM. I've written a thing that automatically checks the headroom of your RAM."

David How, product manager for Macromedia Director, responds: "We're seeing a lot more CD-ROMs than before. We definitely understand that CD-ROM is going to be the delivery medium of choice at this point because of the storage requirements of digital audio, video, and nice-looking pictures. We are also aware that the current version of Director does take a long time for loading things directly from the CD-ROM. Some things that we are looking at and working on for the next release include laying out the physical file format more intelligently, so that we don't go searching or seeking all over the CD-ROM drive.

"Besides the physical file layout, we're looking at doing better memory management, in terms of when we release things as soon as possible, but also giving the developer more flexibility in terms of loading things into memory ahead of time. If in terms of navigation I can go five different ways, we're looking at giving the developer a way of loading all five files at the same time, and when the user is in an idle time mode.

"The Mac version of Lingo is still currently interpretive, so we are planning to provide a compiled version. That will help speed up complex scripts. For the new Director Player for Windows 3.1, that will have a compiled version of Lingo on it. We have a good idea of what to do to help out, and it's just at the point of seeing how we can implement these ideas in a future release of Macromedia Director." ■

HALTEK ELECTRONICS & TEST LAB CO.

SATURDAY JUNE 12 1993
HUGE PARKING LOT SALE!

Proceeds will benefit *Child Quest International
* Devoted to the protection & recovery of missing, abused and exploited children

* Computer Products * Electronic Components * Software
* Test Equipment * Plus much more !

Amazing deals from Silicon Valley's Best!

- A to Z Surplus
- Alltek Computer
- Alltronics
- Corporate Systems Center (C.S.C.)
- Herb's Discount Software
- HSC Electronic Supply
- PC/PC of Santa Cruz
- Redwood Electronic Supply Team
- Strata Remarketing
- Weirdstuff Warehouse

CATAMARAN GIVE-A-WAY!

Bring your Kids to be finger printed

CHILD QUEST INTERNATIONAL, INC. "Keeping Hope Alive"

HotDogs
Sodas
T-Shirts

Take Shoreline Exit off 101, Left on Terra Bella, Left on Linda Vista

1062 Linda Vista Avenue * Mountain View, CA 94043
Telephone (415) 969-0510 * (408) 744-1333 * FAX (415) 964-6973

MicroTimes Readers have Purchasing Power!

82% Are involved in purchases for their companies
64% Authorize Vendor and Purchase
Source: Beta Research West, Inc. Nov. '91

For Advertising Information Call:
510-934-3700
408-244-4400
213-851-8600
714-939-2809

Multimedia Solutions Direct from The Experts

SuperVIA & PhotoFinish

WINDOWS 3.X SUPPORT
PhotoFinish

NOW supports Microsoft Video for WINDOWS

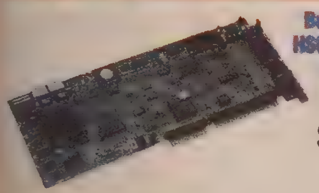
$429

Featuring MovieMaker—JPEG Compression
Capture Color Video Images In Real Time (640 × 480)

The SuperVIA can furnish the non-technical user with super color image capture capability in real time, 1/60th or 1/30th of a second, and display them on VGA, up to 640 × 480 resolution in 256 or 65K colors. Featuring Multiple Sequential Frame Storage, the SuperVIA can digitize a series of images in real time and save them to FLC or FLI Animator files and AVI. SuperVIA is a powerful tool for animation, bundled with a full version of PhotoFinish. PAL version available.

File Format: GIF, TIFF, PCX, CUT, IMG, TGA, FLI & FLC, AVI, JPEG.
Input: Composite NTSC, S-Video, Analog RGB.

Pro 2000 with HSC Interactive



Bundled with HSC Interactive software

$CALL

The PRO 2000 is a New Media Graphics compatible overlay and capture board. It enables up to 3 video sources to be connected to a VGA system, and to display the live video image in full screen or in a scalable window. VGA resolutions up to 800×600 in 16-bit color mode. The audio volume, bass and balance control are software controllable.

File formats: TIFF, PCX, BMP, TGA, MMP…
Input: Composite, or S-Video NTSC and PAL

VIGA+ PowerPak

$CALL

"100% TARGA+ Clone… an excellent low cost alternative…" combined with T-Tools the power utilities for the classic TARGA users. The PowerPak performs chroma keying, video grabs, Multiple Frame Capture, Strobe EFX, Print to Laserjet, and much more. The PowerPak comes with a collection of 28 utilities and a VIGA+ 16/32 Targa compatible board. 64+ and PAL avail.

Input: NTSC color composite video, analog RGB, or S-Video signal.
Output: S-Video, analog RGB, or composite video signal.

Still Video Camera

Canon XAPSHOT

State-of-the-art Still Video camera converts images to electronic impulses for recording and direct display on any NTSC type TV or monitor. With the use of Video Floppies instead of film, there is no waste, no waiting.

RC-250 $455
RC-360 RC-570 $CALL

SuperVIA and XAPSHOT…
"The Perfect Combination!"

Display Your Computer VGA On Television!

Portability, Simplicity and Impressive VGA to TV Conversion

AVerKey

$289

Quantity Discount Available
Dealers Welcome

Affordable Multimedia for Everyone!

In the past, VGA-to-Video conversion has been a difficult and expensive process.

Now, for a mere $289, VideoScan can Easily turn your computer into a powerful presentation tool. This is the ideal solution for cost-conscious executives and computer games enthusiasts that would like to get the maximum experience from their existing computer system.

With VideoScan, you get the high quality, flicker-free video output from any computer application, including Windows. Connect VideoScan to your PC system and view simultaneous display of your computer monitor and TV screen.

A Dynamic Presentation Tool

VideoScan is a dynamic tool for the creation of business presentation, training tapes, software demo tapes, animation and other video presentations. It provides instructors in a classroom environment the ability to project Windows or any graphics applications on inexpensive projection equipment.

Portability

Compact, durable and lightweight, VideoScan is a rugged companion for all applications, Laptop and Notebook connectivity is a cinch for the on-the-road presentations.

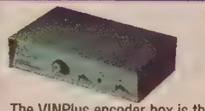
A Snap to Install

VideoScan works with any VGA card running 640×480 resolution (or lower) in any VGA Color mode. To install, simply plug in VideoScan, connect your VGA monitor and VCR or television, and you're ready to go!

Input: Analog RGB signal from VGA display adapter (31.5KHz @ 60Hz), 9V-DC power adapter. Supports up to 32,768 colors conversion

Output: S-Video, composite video, video RGB (15KHz), and VGA loop-thru.

VINPlus Encoder



Convert Computer Image to TV Video

$189

The VINPlus encoder box is the perfect VGA accessory. It converts the signal from your VGA or SuperVGA computer display (up to 640 × 480 resolution with 256 colors) into a professional TV video signal. PAL version available.

Input Signal: Analog RGB signal from VGA display, or video RGB. Output Signal: Composite, S-Video, 15.75KHz multisync VGA output. Size: 6.75W × 4.380D × 1.5H

AV1000 Encoder

The Internal Alternative

$219

The perfect low cost accessory for converting your VGA graphics to TV video. The AV1000 will encode VGA resolution up to 640×480 and 256 color to video.

Input: VGA
Output: Composite Video, S-Video and RGB video.

Digital Desktop Presentation

$429

The AV1000VH is a VGA adapter combo allowing flicker-free TV output. The board is comprised of a Tseng Labs VGA chip and a RamDAC allowing 32k color display for Windows and other applications supporting true-color display. Composite video, S-Video and RGB are outputs from this board.

For true color images of your technical seminars or client presentations, ImageQ for Windows communicates your visuals with the clarity they deserve. For slide shows or fully interactive presentations, use ImageQ to display your 24-bit Targa, BMP and Tiff files. Visual slide sorting, auto-creation of presenter notes and viewer handouts. MCI supports for audio and video.

$295

The Quick and the Dead

Faster Than a Speeding Bullet!

AVI Video for Windows

VIDEO
FOR WINDOWS

QuickTime Movies

$229

It's QuickVIA Super Motion Video Capture Board

If you've tried Video for Windows with other "video blasters", buy ours… It's real time and it really works!

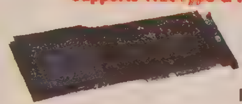
The most affordable solution to produce full-motion AVI (MS Video for Windows) movies right on your desktop. Real time capture at up to 30 frames per second digital video window.

- Complete, single-slot digital video capture solution.
- Video capture in varying window size: 320×240 /240×180 160×120 /80×60.
- Stores digital video on ordinary hard disk.
- Support for AVI and MCI interface in MS Windows.
- Captures digital video as 16-Bit RGB in real time to disk.
- Composite, S-Video input for NTSC and PAL (optional).

Input: Composite or S-Video (Y/C), NTSC or PAL signal.

Desktop Video

Video Titling and Overlay
Supports TrueType & Postscript Fonts

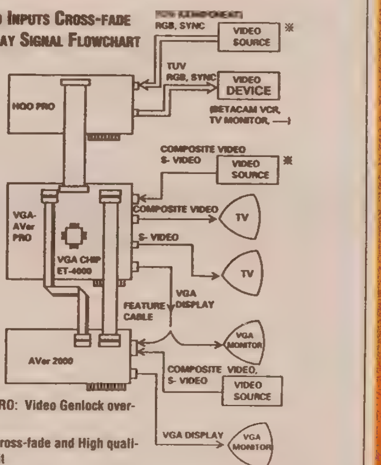


$629
AVer-PRO

INSCRIBER or PrimeTime Professional titling software starting at $395.00

Digital Media Labs AVer-PRO video overlay solution, brings to the desktop videomaker professional quality video titling with superb quality true-color anti-aliased text, and video effects. The desktop video package allows crisp, text to be merged with generated graphics, captured images or live video, or sequence your screen with credit rolls, crawls, and variable transitions. The hardware features overlay with Genlock, broadcast quality composite, S-Video output. Optional add-on for Betacam (YUV) output. Call us for a full line of INSCRIBER professional titling software.

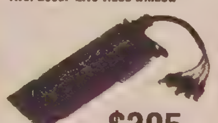
TWO VIDEO INPUTS CROSS-FADE AND OVERLAY SIGNAL FLOWCHART



VGA-AVer PRO: Video Genlock overlay board

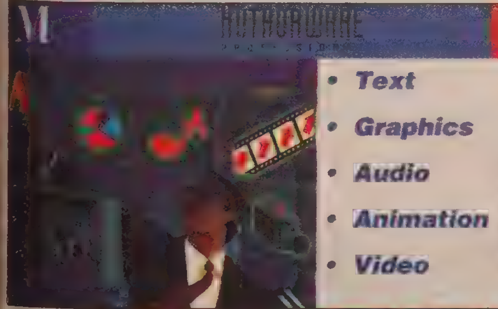
HQO PRO: Cross-fade and High quality output unit

Aver 2000: Live video window



$395
HQO-PRO

The HQO-PRO add-on board provideds fading and cross fading capability to the PRO-CG video titler and graphics overlay card. The HQO-PRO also provides professional video users with component YUV (Betacam) and RGB/Sync broadcast video quality input and output.



Interactive Multimedia Solutions

- *Text*
- *Graphics*
- *Audio*
- *Animation*
- *Video*

What is Interactive Multimedia?

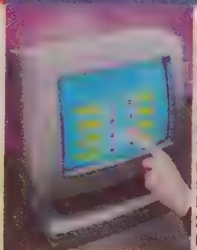
By combining text, graphics, sound, animation, and video, interactive multimedia applications engage multiple senses and enable people to *interact* with information as it is presented.

Five unique advantages makes Authorware Professional the premier multimedia authoring tool. **Object Authoring:** iconic interface controls the logic , and eases complex authoring. **Multiplatform Architecture:** Supports identical authoring environments on both Mac and Windows platforms. **Multimedia Tools:** Power to incorporate text, graphics, sounds, animation, and digital video into applications. **Media Manager:** Increases author productivity and reduces applications size, by storing the media in libraries separated from the application. **Superior Design:** Built-in Computer managed Instruction variables help collect and measure user's performance.

Digital Media Labs is leading these industry trends with innovative multimedia solutions. Whether your needs are in computer based training, performance support or multimedia business presentations, DML has a wealth of experience providing solutions on both the Windows and Mac platforms.

Educators, call for special educational site license at greatly reduced price!

TouchMate



TouchMate is a low-profile device that fits discreetly beneath a computer monitor and plugs directly directly into the computer's serial port.

Unlike other touch input products, there are no additional screens or sensors to attach. TouchMate detects the touch of a finger or stylus on the display screen using internal force measurement sensors.

Resolution: 40 (x-y) touch points/in.
256 pressure levels (z).
Data Interface: RS-232C DB9

REFERENCES IBM CHEVRON, EGLAND AIR FORCE BASE, US NAVY UNIVERSITY OF CHICAGO LAWRENCE LIVERMORE LABS SAN FRANCISCO STATE UNION CARBIDE ELECTRONICS ART [illegible]

To order, call VISA
510-438-9046
47613 Fremont Blvd, FREMONT, CA 94538

Digital Media Labs
The Multimedia Solutions Company

Information: 510-438-[illegible]
Fax: 510-438-[illegible]
Mon-Fri between [illegible]
Saturday
Between [illegible]
[illegible]

Some Artware For Macintosh Computers

Computers Are Helping To Create New Ways Of Telling Stories And Making Art

BY JUDY MALLOY

A STACK OF MAC DISKS

Outside the sliding glass doors of the house I'm visiting in Paradise Valley, Arizona, blue lights (controlled by a switch under an oil painting of three lemons) ran along the edges of the patio walls throwing dim blue rays on the oval pool. Overhead, the stars were unnaturally bright in the wide black desert sky. I put Fortner Anderson and Henry See's "Odyssey" into the drive of a Mac Classic II. The screen darkened. White stars appeared in a black sky. In the foreground, a Greek galley, propelled by animated oars, moved slowly across the sea.

The "Odyssey" (HyperCard 1.2 plus MacinTalk) was one of a stack of Macintosh artware that I had been carrying around for several years on the theory that sooner or later I would have access to a Mac. The "Odyssey" had been mailed to artists and others in the Macintosh community in 1989 with a request to add to it and return it. "An electronic picture of our age," Anderson wrote from Dromos Editions, his small press in Montreal, Canada. "We hope that during its travels the Odyssey will gather to it a sense of the community's wit, intelligence, and sense of purpose."

On the Macintosh monitor, a data map led to his contribution: an effective combination of animated pictures, sound, and words. Words: "To some this is but another picture of one man shooting another, to others it is the symbol of an age." Audio: gun fire. Pictures: animated man's body falling, followed by a woman grieving.

On another screen, I read the words "The first voyage of the Odyssey is now over." I'd been waiting too long for Mac access—almost four years, not counting ten minutes last year in the business section of the Keene, New Hampshire, Public Library where I was ejected for using "nonstandard software" while reading Michael Joyce's "afternoon."

"ONE LONG SKI WEEKEND"

I picked up a can of beer and another disk, the HyperCard work "Spooncomix 1.0" that had come recently in the mail from Mill Valley along with a note from its author Mark "Spoonman" Petrakis who produces live events,

Copyright © 1993 by Judy Malloy. All rights reserved.

Judy Malloy has been making and studying artists software since 1985. Her work has been shown and published internationally. She is an associate editor of Leonardo and Leonardo Electronic News.

Orders in by 2:00 PM Ships Same Day

3.5" Pre-Formatted

31¢
1.2 MB HD
100% Error Free • Lifetime Warranty
CHD5
Qty 500

33¢ in Lots of 200
35¢ in Lots of 50
Shipping—$1.20 per 100
Color Coded Labels $2.00 per 100

19¢
360KB DD
100% Error Free • Lifetime Warranty
CDD51
Qty 1000

19¢ in Lots of 1000 Sleeves & tabs Not included
21¢ in Lots of 500 Includes Sleeves & tabs
25¢ in Lots of 100 Includes Sleeves & tabs

Brand New 720KB DSDD
49¢
ea
Dos Formatted
CDD3F

or unformatted
Macintosh, OEM & Duplicator Grade (MX2DD)
Color Coded,Wrap Around Labels $2.00 per 50
Shipping $1.20 per 50

Brand New 1.44MB DSHD
69¢
ea
Dos Formatted
CH
CHD3F

or unformatted
Macintosh, OEM & Duplicator Grade (MX2HD)
Color Coded,Wrap Around Labels $2.00 per 50
Shipping 60¢ per 25

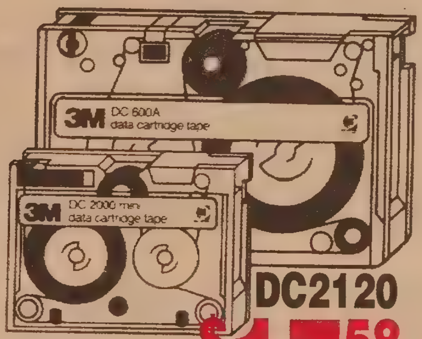
AUTHORIZED DISTRIBUTOR

3M

DC6150
$18.58 Ea
Dare to Compare
While Supplies last

3M Data Cartridges

Stock No.	Size	
DC2000	40 MB	$13.62
DC2000T	Thetamat QIC 40	17.19
DC2080	80 MB	17.49
DC2120	120 MB	17.58
DC2120X	Ximat format QIC 80	21.95
DC600A	60 MB	17.98
DC6150	150 MB	18.58
DC6250	250 MB	23.95
DC6525	525 MB	27.28
Magnus	1.2 GB NEW	34.90
Magnus	2.0 GB NEW	35.90


3M DC 600A data cartridge tape
3M DC 2000 mini data cartridge tape
DC2120

$17.58 Ea

Prices ea. for 2 - 10
Shipping: 40¢ per Cartridge

Verbatim Data Cartridges

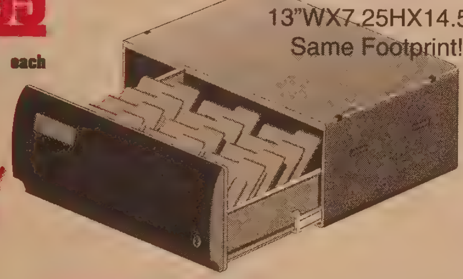
Stock No.	Size	Verbatim
DC2000	40 MB	$11.89
DC2000	Preformatted QIC 40	14.69
DC2120	120 MB	16.19
DC2120	Preformatted QIC 80	18.98
DC600A	60 MB	16.78
DC6150	150 MB	17.98
DC6250	250 MB	24.89
DC6525	525 MB	27.28

Prices ea. for 2 - 10
Shipping: 40¢ per Cartridge

Stackable Disk Drawers

$25.95 each

Both measure 13"WX7.25HX14.5D Same Footprint!



Saves Space! Stacks up to 6 Units

Holds 230–290

BD-203	3.5" Drawer, Holds 230	$ 25.95
BD-205	5.25" Drawer, Holds 290	25.95

Shipping—$2.50 ea

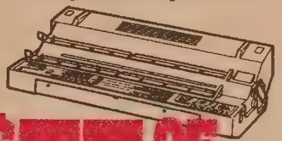
Genuine HP Toner Cartridges

HP 92298A For HP laserJet4, 4M & Compatible printers

Shipping $1.50 ea.

NEW **$99.95** each

HP 92295A For HP laserJet II, LaserJet IID LaserJet III, LaserJet IIID, Apple LaserWriter IISC, LaserWriter IINT IINTX & Compatible printers



$75.95 each
Shipping $1.50 ea.

HP 92275A For HP laserJet IIP, IIIP, Apple LaserWriter NT & SC Series & Compatible printers

$63.95 each
Ship. $1.50 ea.

HP 92285A For HP laserJet, laserJet Plus, laserJet 500 Plus , Apple LaserWriter , LaserWriter Plus & Compatible printers

$75.95 each
Ship. $1.50 ea.

Monitor Mover Arm

Can rotate 360° comfortable for optical view, Holds up to 60lb. Platform tray 11x11" with Auto brake

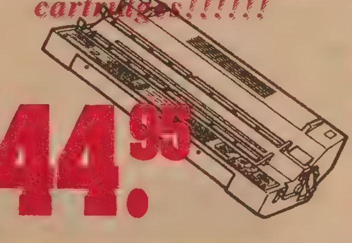
$38.95 each

Save Desk Space!

Ship. $3.50 ea.

Americal's OEM Quality Toner Cartridges

Recycle your old toner cartridges!!!!!!



$44.95

GSX2 For HP laserJet II, LaserJet IID LaserJet III, LaserJet IIID, Apple LaserWriter IISC, LaserWriter IINT IINTX & Compatible printers

GSX1 For HP laserJet IIP, IIIP, Apple LaserWriter NT & SC Series & Compatible printers

GSX3 For HP laserJet, laserJet Plus, laserJet 500 Plus , Apple LaserWriter , LaserWriter Plus & Compatible printers

$5.00 Reward : Return your empty toner cartridges and we will give you $5.00 credit towards your account.

Americal Group Computer Products Inc. 800-288-8025

Address: 12132 Sherman Way., P.O.Box 16388, N.HollyWood, CA 91605
Call us at 1-800-288-8025 or Fax to 818-765-3887 Hours: Mon-Fri 6AM-6PM PST

AMERICAL'S NO-PROBLEM LIFETIME WARRANTY

If for any reason Americal Bulk disks fail to function properly during their lifetime under normal use, simply return them and we will cheerfully refund your money or replace them!
—Americal

Terms: Orders in by 1PM will be shipped the same day. All orders charged $4 handling fee. We accept Amex,Visa, Mastercard, or Discover. Calif. residents please add 8.25% sales tax. Add $5 if COD. Shipping charges for 48-states ONLY—Call for overseas, air-freight, HI, AK & PR, or special charges for purchase orders. FPO, APO & Canada, please add $10.00 handling charge. PO's accepted from gov't agencies, schools & Fortune 500 co's ONLY. Prices subject to change. Logos and are the property of their respective companies. ©1993 Americal Group.

HP InkJet Cartridges & Refills

51608A HP	(DeskJet & Deskjet Plus)	$17.95ea
51604A HP	(ThinkJet & QuietJet)	12.95ea
51606A HP	(PaintJet & PainWriter)	24.95ea
51626A HP High Capacity	Double New	26.95ea
51608A Refill	Single Rifill	12.95ea
51626A Refill	Double Rifill New	29.95ea

Shipping 60¢ per pack

parties, productions, and multimedia events. "I've been working lately with color and animation, but these are the first things I did," he said.

"Spooncomix 1.0" combines mouse drawn pictures with words. It uses the computer's potential to both isolate pages and simulate page turning so that it works the way slide shows and good children's books work. The "Book of Damoosh," one of three selections on "Spooncomix 1.0," describes the origin and customs associated with the "Finno-Tartar Festival of Damoosh," an event ("Because snow is around for so long winter life among Finno-tartars is pretty much one long ski weekend") that integrated well with the beer and Spanish peanuts I was consuming while clicking. Damoosh, the story explained, was Fyodor Al Pesto Damoosh, whose life work involved sour goat milk experiments. Among other things, he discovered that although the "smell did not promote mating," sour goat's milk was better for hairdressing than it was for sealing mortar cracks.

Artware that asks for complex participation and extensive user input involves the user more deeply and is more truly interactive. However, sometimes with simpler, less intrusive interfaces, the user is able to forget about the physical presence of the computer and thus becomes locked into the work/connected with the work. At any rate, although artists and writers are prone to claiming that the computer, software, interface, and structure they work with is the only good one, all kinds of approaches are valid.

The final screen of the "Book of Damoosh" was a mouse drawn Greek galley. Not surprisingly, it was rendered somewhat differently from the galley that opened the "Odyssey," but the Greek ship seemed an effective metaphor for the kind of exploration in uncharted waters that writers and artists are doing with computers.

> "There is something about the infinite choice within a preset range of variables typically available to the multimedia user that is rather like ordering fast food." —Simon Penny

"YOU WANT TO WRITE A BOOK THAT WILL CHANGE ANY TIME"

My host turned off the blue patio lights. It was getting late—time for Stuart Moulthrop's "Dreamtime"—a disk that came with a special issue of the Atlanta-based literary magazine *Perforations* called "After the Book." "Dreamtime" (written in HyperCard v1.2.5) is part of a work in progress called "Chaos" and represents the dream activity of three individuals. Each card contains words or images and "transitional symbols" that allow you to move around.

"You are in a maze of pointless little passages," I read as text replaced itself, and like a bad nightmare, assaulted me with isolated spoken words (among which I thought I recognized Mark Bernstein's expressive "oh"), images such as a constantly reoccurring graphic of a man reading "Aviation Leak and Crash Pornography," and disturbing words:

"the holy blender of Lourdes"

"the bedspread of Turin"

"One night six months later you started up talking again in the middle of Ed Sullivan. Barry Sadler was singing 'The Ballad of the Green Berets...'"

"And they all grab you before you can get away."

"When you brought this to the attention of a native he said oh right, yeah, those. "

"Cat fish death camps"

"You would like to know more about catfish but they aren't on the menu, uh sorry, the agenda..."

On one screen I caught the words "You want to write a book that will change any time its ready you confess to your friends and of course your friends laugh and push potato puffs down the g-strings of the male stripper."

FOLLOWING VISUAL TRAILS

A few days and several Mac disks later, I was walking in the Phoenix Mountain Reserve, up a dry, stony path bordered with masses of yellow, blue, and pink flowers and enormous polysequentially branching saguaro cacti that brought to mind some words Stuart Moulthrop had written in "After the Book." "I've always thought polysequential was a better way to describe hypertext," he said.

I sat on prickly, clay soil and wrote a few notes about words versus pictures in artware interfaces in the works I'd been viewing or reading about recently: Richard Gess's "Mahasukha Halo," Christopher Burnett's "Muto(scape)," and a collection of French electronic literature called "KAOS." A few older works also came to mind: Robert Edgar's "Memory Theatre," Sonya Rapoport's "The Animated Soul," Abbe Don's "We Make Memories."

Media designer Robert Edgar's "Memory Theatre" (for Apple II computers) first showed me how a visual interface could change the reader's way of looking at a work. In "Memory Theatre" there are a series of rooms that the viewer "enters" to read text or view images.

Computer artist Sonya Rapoport integrated international Western icons and Egyptian hieroglyphs in the HyperCard stack (computer program designed by Kathryn Woods) that controlled her interactive installation "The Animated Soul." "The Animated Soul" is based on ancient Egyptian rituals for ensuring a happy life and everlasting life after death and was first shown at the Ghia Gallery, a San Francisco gallery that specializes in selling funerary objects. By following animated visual trails that began with icons—such as an owl for wisdom and a windmill for power—the viewer ends up with a "double" or "Ka" from Egyptian mythology.

For "We Make Memories" (HyperCard stack and videodisc for Macintosh II with at least 2MB of RAM and a laserdisc player with a serial port and an NTSC video monitor), Abbe Don designed a purely visual interface—a timeline of family photographs from 1890 to the present. Viewers clicked on family members and heard/saw videotapes of stories told by Don as well as her great-grandmother, grandmother, and mother.

Christopher Burnett's "Muto(scape)" (HyperCard for Macintosh II series with 13" color display, 5MB RAM, and 80MB hard drive) explores the mixed culture of cartoon animation in a stack that is "analogous to early, hybrid cinematic devices." Burnett, who

RESOURCES:

Claris HyperCard Development Kit
Claris Corp.
1-800-3-CLARIS

The Computer Is Not Sorry
George Fifield/
Brian Wallace
The Space
107 South St.
Boston, MA 02111
(617)451-0602
Email:
gwf@world.std.com

KAOS
Action Poe(/)tique
Rue J. Mermoz
Res. La Fontaine-au-Bois no. 2
77210
Avon, France

Apple Computer, Inc.
20525 Mariani Ave.
Cupertino, CA
95014

The Odyssey
Dromos Editions
Fortner Anderson
4083 Clark
Montreal, H2W
1X1 Canada

Spooncomix
Mark Petrakis
pARTy/SCIENCE
(415)381-5622

Texas Instruments

TravelMate™ 4000
Notebook Computer

New Lower Prices

TM4000 WinSx /25 w/120MB HD drive	**$1,899.00**
TM4000 WinDx /25w/120MB HD drive	**$2,399.00**
TM4000 WinDx /25 w/200MB HD drive	**$BEST**
TM4000 WinDx2/50 w/200MB HD drive	**$BEST**
TM4000 WinSx /25 Color w/120MB HD drive	**$BEST**
TM4000 WinDx2/40 w/200MB HD drive	**$BEST**

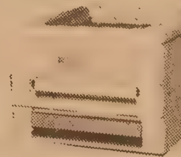
- 5.7 Pound, 3-5 Hours Battery Life.
- 10" VGA Display 640 X 480, External 1024x768
- 4MB RAM Expandable to 20MB
- MS-DOS 5.0,Winodws 3.1,TravelPoint Device.

TI TM4000 WinSLC

- 80486-25Mhz 60/80MB HD
- 10" VGA 640 X 480
- 2/4MB RAM Exp. to 6MB
- DOS 5.0, Windows 3.1
- Travel Point Mouse,

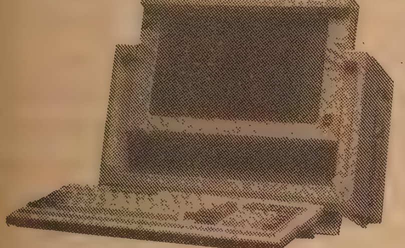
486SLC performance
at 386SL prices $1599/$1759

Texas Instruments MicroLaser Printer



- PostScript Laser Printer
- RISC 8220 (Turbo)&68000
- PS17 9PPM $1099
- PS35 9PPM $1199
- PS35 Turbo 9PPM $1399
- AppleTalk for Mac $50

LCD / G.P. / COLOR VGA PORTABLE



- **80386-40DLC**
- **1MB Exp. to 32MB**
- **2 or 3 expansion Slot**
- **1.2MB w/FHDC (1.44MB optional)**
- **VGA 640 X 480 16 Gray Scale**
- **2 Serial 1 Parallel**
- **120MB Hard Disk**
- **One yearWarranty Parts & Labor**

LCD	Gas plasma	color
$ 1495	**$ 1695**	**$2599**

486-33DLC NOTEBOOK

- **80486-33DLC**
- **9" LCD VGA Display**
- **4MB RAM Exp. to 20MB RAM**
- **1.44MB FD,**
- **Built-in Hand Scanner Port.**
- **1 Serial, 1Parallel, VGA Ext. Port.**
- **Buit-in Fax/Modem, Mouse port.**
- **One SCSI-2 Port, Keyboard Port**
- **One year Warranty Parts & Labor**

$2259 130MB / **$2459** 210MB

486-50DX2 / 486-40DLC

- **80486-50DX2 / 80486-40DLC**
- **9" LCD VGA Display**
- **4MB RAM Exp. to 20MB RAM**
- **1.44MB FD,**
- **Built-in Hand Scanner Port.**
- **1 Serial, 1Parallel, VGA Ext. Port.**
- **Buit-in Fax/Modem, Mouse port.**
- **One SCSI-2 Port, Keyboard Port**
- **One year Warranty Parts & Labor**

130MB	210MB	130MB	210MB
$2649/	**$2849**	**$2399 /**	**$2659**

Toshiba Notebook

Satellite
T1850C

T1800SX	
386-20 2MB 60MB HD	**$BEST**
T1850/T1850C	
386-25 4MB 80MB HD	**$BEST**
T3300SL	
386/325SL 2mb 80/120mb hd	**$BEST**
T4400SX/T4500SX	
485-25SX 4mb 120mb hd	**$BEST**
Color (Active)	**Call for Best Price**

386/486-33DX CRTPortable

386/486-33DX, 1MB RAM, 120MB HD, ColorSVGA

$1975/$2059

IBM/ValuePoint 433DX

- **80486-33DX, (ISA)**
- **8MB Exp. to 32MB**
- **1.44MB Floppy Drive**
- **1 Serial, 1Parallel, 1Mouse Port**
- **101 Enhenced Keyboard**
- **120MB Hard Disk , 5 Exp. Slots**
- **SVGA(1024x768), Monitor : Optional**
- **OS2/windows, mouse**
- **One year on site Warranty**

CALL

McTEK 486-33/50DX

- **80486-33DX/ 486-50DX w/64K Cache**
- **4MB Exp. to 32MB**
- **7 Expansion , 2 Local Bus Slot**
- **1.2MB Floppy Drive**
- **2 Serial, 1Parallel**
- **101 Enhanced Keyboard**
- **120MB Hard Disk (17ms)**
- **Option : VGA card and monitor**
- **One year Warranty Parts & Labor**

$1259 / $ 1459

McTEK 486-33/50 EISA

- **80486-33/50DX w/64K Cache**
- **4MB Exp. to 32MB**
- **8 Expansion Slot**
- **1.2MB Floppy Drive**
- **2 Serial, 1Parallel**
- **101 Enhanced Keyboard**
- **120MB Hard Disk (19ms)**
- **Option : VGA card and monitor**
- **One year Warranty Parts & Labor**

$1559/1799

MONITORS/VIDEO

Trident VGA w/512K	$49
Paradise VGA w/1MB (OEM)	$89
Tseng Lab VGA w/1MB	$109
Fahrenheit 1280 w/1mb VRAM	$209
Fahrenheit 1280 VL Bus	$255
ATI Ultra Plus w/1mb	$279
ATI Ultro Pro w/2MB	$559
Diamond Stealth w/imb VRAM	$209
SVGA Monitor .28mm	$289
SVGA Monitor non-interlaced.	$335
VIEWSONIC 6FS	$599
NEC 3FGX . . (In Stock)	$649
NEC 4FG . . . . .(In Stock)	$769
NEC 5FG . . . . .(In Stcok)	$1399
SONY 1403S	$619
SONY 1730S	$1199
Mitsubishi 20" 1280 X 1024 .	$1799

PRINTER

HP IIP+	$799
HP IIIP	$999
HP 4 /4M.	Call
HP Desk Jet Plus 500	$399
HP Desk Writter (Mac)	$399
HP Scanner IIP/IIC	$899/$1490
Epson 3250 (24pin)	$195
Citizen PN48	$299
Epson 2250 (9 Pin)	$125
Canon BJ-10ex	$299
Okidata OL400	$655
Panasonic KXP2124	$309
Panasonic 4410 5ppm	$739
NEC Model 95F PS Level II	$1395
QMS410	$1299
IBM Laser Printer Model 10 . .	Call
Canon BJ-200 . . after rebate/	$289

MISC/TAPE DRIVE

Logitech Mouseman	$75
Logitech Trackman	$89
Microsoft Mouse	$95
Scanman Plus/256 w/OCR . .	$399
Artiscanner 600dpi Color . .	$1029
ScanPlus 3000 Color	$599
Colorado 120mb tape backup	$225
Colorado 250mb tape backup	$275
Modem 2400 Baud Int.	$49
Modem/fax 2400/9600	$89
14400 Fax/Modem Int.	$199
14400 Fax/Modem Ext.	$239
MultiMedia Starter Kit Int. .	$439
MultiMedia Starter Kit Ext. .	$519
MultiMedia Upgrade Kit Ext.	$519
SounBlaster Pro	$185
Video Blaster	$345

HARD DRIVES

40MB IDE	$189
80MB Maxtor/Conner	$225
120MB Quantum (IDE)	$269
120MB Conner (IDE)	$275
120MB Maxtor (IDE)	$269
120MB Maxtor for Mac int.	$359
200MB Conner (IDE)	$369
200MB Maxtor (IDE)	$369
330MB Maxtor (IDE)	$599
240MB Quantum SCSI	$599
540MB Conner (IDE)	$999
Norton Anti Virus	$55
PC Anywhere	$89
Wordperfect 5.1	$259
Wordperfect 5.2 Tradeup	$99
Microsoft Word/Excel.	$129
Microsoft Windows 3.1	$95

Monthly Specials

AST PowerExec Notebook Computer 386/486	**Best**
IBM Think Pad 700/700C	**Call**
NEC UltraLite SL/20 4MB 80MB / 120MB HD	**$1699/1879**
NEC UltraLite SL/25 2MB 80/120MB MB HD	**$2499/2899**
NEC Laser Printer 95	**$1395**
MS DOS 6.0 Upgrade	**$49**
Toshiba CD ROM int.	**$489**
Upgrade computer	**Call**
Rental	**Call**

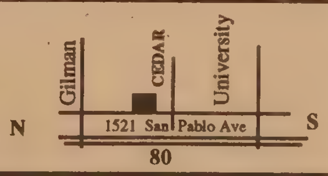
McTek Systems, Inc.
1521 San Pablo Ave. Berkeley, CA 94702
Tel : (510) 525-5129

AUTHORIZED
ALDUS, AST, NEC
IBM, LOTUS, NOVELL,
TI,HERCULES,ORCHID

VISA / MASTER ACCEPTED

Financing and
Leasing Available

ALL PRICES SUBJECT TO CHANGE



teaches computer art at the Kansas City Art Institute, has designed an animated visual interface that combines a circularly structured panorama or zoetrope with mirrors. The inner wall is lined continuously with a series of background images from cartoons such as Winky Dink and Betty Boop.

VISUAL AND VERBAL INTERFACES: SOME HYPERCARD "PILES"

KAOS, a special edition of the French literary magazine *Action Poe(/)tique*, includes a Macintosh disk that contains HyperCard "piles" of poetry and combinations of words and pictures by French, Egyptian, and Native American writers and artists. The works, for the most part, have simple but compelling interfaces ("mise en sce(\)nes" they call them), and even if one's French is very limited, they are interesting from a structure and interface point of view.

A poem by Marie Etienne utilizes a grid with forty squares. Clicking on each square brings up a different segment of text. The Native American "Where Do I Come from? From the CENTER of the Earth" starts with a small circle within a circle which when clicked on moves into words and images—a tent, for instance, and (roughly translated) the words "the sound of water flows towards my tent." "All is achieved by beauty," the work concludes. Jean-Pierre Balpe's "Autobiographie" uses hypertext style links as well as automatic generation and includes drawings and photographs.

In the "Poeme de Bassam Mansour" (Calligraphy: Hassan Massourde) an excellent "mise en scene" is formed by a dove, calligraphically drawn before one's eyes, surrounded by words like "morte," "femme," and the pleasing "quit" substitute "au revoir." At the bottom, the reader is offered the choice of reading the work in Arabic, in French, or in a combination that includes graphics.

"There is something about the infinite choice within a preset range of variables typically available to the multimedia user that is rather like ordering fast food," Simon Penny, who is setting up a program in electronic media at the University of Florida, writes in the catalog for "The Computer Is Not Sorry" (an artware show held in Boston's the Space early this year). "One day in a restaurant a waitress said to me: 'Salad: ranch, blue cheese, thousand island, oil and vinegar.' 'Salad' was a module in 'dinner,'" Penny continues, "and logic prevailed: I could not have something in between 'ranch' and 'blue cheese,' nor could I have 'yak butter.' The kitchen had a closed architecture. Food midway between, say, a salad and a soup (i.e. gazpacho) simply can-

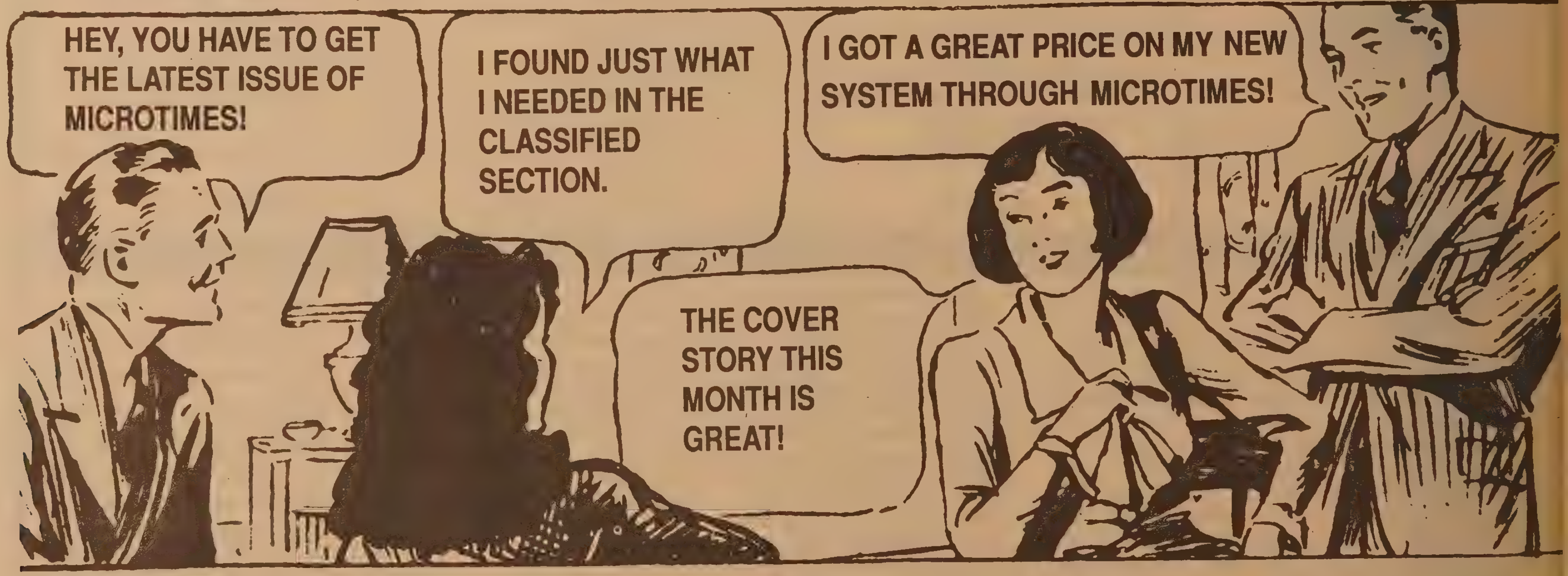
> The Greek ship seemed an effective metaphor for the kind of exploration in uncharted waters that writers and artists are doing with computers.

RESOURCES:

Storyspace After the Book
(includes Dreamtime by Stuart Moulthrop)
Eastgate Systems
PO Box 1307
Cambridge, MA 02238
1-800-562-1638, (617)924-9044

Mahasukha Halo
Richard Gess,
Cataloging Dept.
Woodruff Library,
Emory University
Atlanta, GA 30322-2870
Email:
<libgess@emuvm1.bitnet>

DON'T BE LEFT OUT...


HEY, YOU HAVE TO GET THE LATEST ISSUE OF MICROTIMES!
I FOUND JUST WHAT I NEEDED IN THE CLASSIFIED SECTION.
THE COVER STORY THIS MONTH IS GREAT!
I GOT A GREAT PRICE ON MY NEW SYSTEM THROUGH MICROTIMES!

PICK UP YOUR COPY TODAY!
MICROTIMES™

not exist." Penny's concern that the computer promotes "reduction of diversity" is valid. Works with simple interfaces such as those in the KAOS collection do have a closed architecture, but if they work (which many do), does this really matter?

A HYPERTEXT EXCURSION

A beer and a few notebook pages later, I stood up and, observing that, in the distance, one of the downward trails led to a major boulevard, I followed this trail rather than the trail that I knew led home. It was a pleasant walk despite the glances my Cal hat drew from hikers going the other way, wearing Arizona State hats. Distracting views led across the desert to distant bluffs, and I sometimes stopped to identify wildflowers in *Mockel's Desert Flower Notebook*, a book that artist Melynda Reid (who lives in a mobile home in Florida where she draws wildflowers) had loaned me. An hour or so later, I emerged on a busy thoroughfare about four miles further away from home than intended. Ah, I thought as I sat waiting for a bus that I hoped would take me back to Paradise Valley, a hypertext excursion.

"LOSTNESS"

Heading to Paradise Valley on the "B" line bus, I thought about Richard Gess's "Mahasukha Halo." (Storyspace, for Mac Plus running System 6.0 or higher.) "Mahasukha Halo" is a collection of sentence and story fragments that start and stop as they imply a story about an extraterrestrial subculture. "A byproduct of gene-line memory retrieval: entertainment. Multimedia replays of accidents (Ronnie's uncle's woody wagon splintering in sideswipe), war, sex, long-gone earth cityscapes, journeys—the catalog could be endless all from the [Church's] cutting-room floor (they don't care about New York 1970 or Grand Canyon 1939 or anything not directly relevant to the reconstruction, but the techs below save this stuff...)," I read.

"By exploiting 'lostness'—via fragmentation, repetition, digressions to notes and intertexts, and looping—the 'Halo' breaks down conditioned expectations of narrative, making readers concentrate instead on individual images and their resonances in accretion." Gess wrote in the September 1992 issue of *Leonardo Electronic News* "The 'action' of the 'Halo,'" he says, "like a cloud after an explosion, may consist primarily of happenings never seen."

NEW WAYS OF TELLING STORIES AND MAKING ART

"If you have a story to tell, isn't it best to tell it in a straightforward manner?" a friend asked that evening.

"Every writer has his or her own ways of telling a story," I say. Every artist has a different vision. It is not a question of replacing the sequential book, nor is interactive art the only valid contemporary artform, but rather that the computer has enabled new ways of telling stories and making art. ■

Continued from page 258

perfect for multiple-platform environments and file conversions. You can even print PostScript files.

The working display, where you actually work on an image, supports native Amiga modes, Firecracker 24, HAM-E, or IV24. You can also render an image to another display device using DCTV, EGS, or SAGE file formats. More modes are sure to be added. Button gadgets are logically arranged on its slick interface.

Though images are internally 24-bit, a palette of only 256 colors is provided for painting and rendering. The palette can be changed without affecting the picture, however. When ranges are used, ImageFX will spread colors between ranged palette colors. The color spreads must be seen to be appreciated!

The release I got had a few minor quirks which should disappear very soon with updates. Otherwise, ImageFX is a very mature product. This package is a must-have for anyone doing image processing. (Great Valley Products, Inc., 600 Clark Ave., King of Prussia, PA 19406. 215/337-8770)

VISTAPRO 3.0

Published By: Virtual Reality Laboratories, Inc.
List Price: $99.95
Reviewed By: Douglas J. Nakakihara

VRL has refined and added many new features to Vistapro in the recently released v3.0. Essentially, Vistapro generates landscape images based on elevation data. Included with the program are a variety of data files from Yosemite to Mars, and additional landscapes are available. You can further customize the terrain with user-definable trees, rivers, lakes, snow, stars, etc. Modify or create your own landscapes with the optional TerraForm program ($39.95).

Using the new Cloud Panel, realistic clouds can now be easily added. These also animate extremely well. Many other improvements further enhance the realism of the rendered landscapes. AGA, IFF24, Firecracker, DCTV, and HAM-E support is featured with image sizes up to 4096 x 4096! Vistapro now includes the ability to watch it render the image.

Vistapro lets you individually place trees, grass, buildings, and roads on your topographic map for even greater realism. Other images can be loaded in either foreground or background. Use Vistapro images as backgrounds in your favorite 3-D rendering package. Landscapes can even be saved as TurboSilver objects!

Animated sequences are made possible using Vistapro's rich scripting language. The optional MakePath program ($39.95) lets you quickly generate scripts. Even in lo-res mode, these "fly-by" animations are breathtaking. You can also use the scripts for quickly setting user preferences. I've barely had room to touch the surface, but suffice it to say that Vistapro is great fun and a recommended buy. 4MB RAM required. (Virtual Reality Laboratories, Inc., 2341 Ganador Court, San Luis Obispo, CA 93401. 805/545-8515) ■

USER GROUPS

continued from page 236

(415)327-BANG. Email: info@BANG.org. [Exp. #109.]

NOVELL

Silicon Valley Novell User Group. Meetings: 3rd Wed., 6:30 pm, Sundowner Inn, corner of Ross and Mathilda, Sunnyvale. Call: Bill Strouse, (408)739-9081. BBS: (408)739-8753. [Exp. #114.]

OS/2

OS/2 Bay Area User Group. Meetings: 4th Mon., 7:00 pm. For anyone interested in OS/2. Presentations, product demos, questions and answers. Call: (415)755-3124. [Exp. #109.]

OS/2 SIG Of San Francisco. Meetings: 2nd Wed., 7:00 pm, location varies. Call: Margery Blum, (415)931-3110. [Exp. #112.]

PARADOX

SVCS Paradox SIG. Meetings: 3rd Tues., 7:00 pm, Tandem Computers, Bldg. 251, 10100 N. Tantau, Cupertino. Membership: $12/yr. Call: Scott Jackson, (408)738-0424. [Exp. #114.]

PROGRAMMING LANGUAGES

APL Interest Group Of Northern CA. Meetings: 2nd Mon., 7:00 pm, Syntex Labs, 3401 Hillview Ave., Palo Alto. A member SIG of ACM. Call: (408)742-5277. [Exp. #110.]

C/C++ Programmers Network. Write: Rick Rowe, 3245 S. White Rd., Suite 106, San Jose, CA 95148-4056. Email: rown@netcom.com. [Exp. #109.]

Forth Interest Group Of North Bay. Meetings: 2nd Sat., 1:00 pm, 2055 Center St., Berkeley. Tutorial at noon. Call: Leonard Morgenstern, (510)376-5241. [Exp. #113.]

North Bay Forth Interest Group. Meetings: 2nd Sat., 1:00 pm, 2055 Center St., Berkeley. Tutorial at noon. Call: Leonard Morgenstern, (510)376-5241. [Exp. #113.]

Power BASIC Study Group. Meetings: Now forming. Call: Thipdar, (510)783-1972. [Exp. #111.]

Sacramento Forth Interest Group. Meetings: 4th Wed., 7:00 pm, SMUD, 1708 59th St., Rm. A., Sacramento. Call: Bob Nash, (916)487-2044. [Exp. #113.]

San Francisco North Bay Smalltalk/V User Group. Meetings: Every other month in downtown SF. Call: David Freihofner, (415)362-4283. Email: dfrei@well.sf.ca.us. [Exp. #112.]

SEF/SVCS Visual Basic SIG. Meetings: 2nd Thurs., 7:00 pm, Cubberley Comm. Ctr., Rm. H-1, 4000 Middlefield, Palo Alto. Call: Allan Colby, (415)851-4657. [Exp. #114.]

SF Bay Area Visual BASIC User Group. Call: Gustavo Eydelteyn, (510)547-7295. [Exp. #111.]

Silicon Valley Forth Interest Group. Meetings: 4th Sat., 10:00 am, Applied Biosystems, Inc., Conference Room A/B, 230 Lincoln Centre Dr., Foster City. Call: Art Hampton, (415)873-8554. [Exp. #113.]

R:BASE

R:BASE Developers Group. For meetings and membership info, call: (415)956-1200. [Exp. #110.]

SYBASE

Sybase User Group. For information, write: Sybase User Group, attn: Mar-Com, User Group Membership, 6475 Christie Ave., Emeryville, CA 94608. [Exp. #113.]

TELECOMMUNICATIONS

BMUG Telecom SIG. Meetings: Last Wed., 8:00 pm. How to use your modem, terminal programs, and the BMUG BBS. Call: (510)549-BMUG. [Exp. #110.]

TEXAS INSTRUMENTS

Santa Clara Valley TIPC Group. Meetings: 4th Thurs., 7:00 pm, Magnolia Inn, 176 S. Bernardo, Sunnyvale. Newsletter, library. Call: Ralph, (510)526-2492. [Exp. #109.]

TI-99/4A. Meetings: 2nd Sat., Oakland. Call: Fred, (510)530-8335. [Exp. #109.]

UNIX/XENIX

BACUG—Bay Area Coherent User Group. Meetings: 3rd Sun., 2:00 pm, San Mateo. Call: Viki Tamaradze, (510)549-1876; email: johnp@dumbcat.sf.ca.us. [Exp. #113.]

N. California UNIX SIG. Meetings: New group, just forming. UNIX, XENIX, LINUX, Coherent. Call: Randy Just, (707)769-1648. [Exp. #112.]

UNIX SIG. Meetings: 2nd Tues., DEC, 800 W. El Camino Real, Mountain View. Sponsored by Software Entrepreneurs' Forum. Call: Priscilla Rowe, (415)776-0513. [Exp. #110.]

VIDEO TOASTER

Video Toaster User Group. Meetings: Last Thurs., 7:30 pm, HT Electronics, 275 N. Mathilda Ave., Sunnyvale. Special guests, equipment demos, hands-on workshops, plus info/tips on new System 2.0. $4 for non-members. Call: Andrew Timmins, (408)243-9233 (eve). [Exp. #109.]

VIRTUAL REALITY

Virtual Reality Group. Meetings: varies. VRG is a nonprofit organization dedicated to supporting and promoting the development of VR technologies in the Bay Area. Everyone welcome. Call: Linda Jacobson, (415)826-4716. Email contacts: Linda Jacobson (lindaj@well.sf.ca.us), Peter Rothman (avatarp@well.sf.ca.us), or Timothy Childs (tchilds@well.sf.ca.us). [Exp. #114.]

Virtual Reality SIG. Meetings: San Francisco, East Bay. Call: Mike Conduris, (415)566-8681. [Exp. #110.]

WINDOWS

BMUG Windows Programmers SIG. Meetings: 1st Tues., 6:30 pm, 2055 Center St., Berkeley. The Programmers SIG is a forum for Windows programmers of all levels to meet and exchange information. Call: Ferdinand Rios, (510)526-3031. [Exp. #109.]

WinSIG. Meetings: 1st Wed., 6:30 pm, Cubberley Community Center, Rm. H-1, 4000 Middlefield Rd., Palo Alto. Windows SIG of the Software Entrepreneurs' Forum. Call: Fran Finnegan, (415)288-4400. [Exp. #113.]

Is Your Listing Missing?

Free user group and association listings are limited to the group's name, meeting information, contact name and phone number, and a ten-word description. They will be **deleted at six-month intervals** to ensure timeliness and accuracy of information.

Free BBS listings are limited to the board's name, phone number, hours, baud rates, parameters, and a ten-word description. Please let our readers know if your BBS is free or requires a fee. Because we have an ongoing problem of boards shutting down without telling us, much to the annoyance of would-be callers and the new phone number's owner alike, we will **delete these listings after they've run three months.** The notice at the end of the listing—Exp. #xxx—refers to the last issue number it will appear in unless renewed.

You can update or renew your listings at any time. If yours is missing, send your listing information to:

US Mail should go to: MicroTimes User Group, 3470 Buskirk Ave., Pleasant Hill, CA 94523. **Faxes** are welcome at (510)934-2417. **Email** can be sent to: microx@well.sf.ca.us. Or MCI:MICROTIMES.

BBSes

cluding alt areas. [Exp. #111.]

Tailored Chains BBS. (510)614-2960 (1200), 614-2961 (2400). Four lines, gay oriented, multiline chat, gay GIFs. Free. Sysop: Plane Doctor. [Exp. #111.]

Terminal One BBS. (510)432-2461, 432-0204. 1200/2400/9600/14,400. Shareware, adult files, registered games, msg areas, plus The Weasel Den II. Sysop: Pete Nelson. [Exp. #111.]

Tiger Team. (510)268-0102. 14,400. Games, data encryption, PC Security, Buddhism, GIFs, Fidonet, Dharmanet. Star Trek conference. Free. [Exp. #109.]

The Transfer Station BBS. (510)837-4610, 837-5591. 8-N-1, 24 hrs. Free Internet/USENET access. Lrg DOS/Windows/OS2 library. No fees. [Exp. #109.]

Viper 1 Premium BBS. (510)535-0231, 535-0315. 8-N-1, 24 hrs., 2400/9600/19,200. Multiline, 900MB, 1.3GB online, large adult file areas, games, file scanning facilities online. [Exp. #111.]

The Warped BBS. (510)939-8344. 300/1200/2400/9600/14,400. Sysop: Mike Baker. [Exp. #110.]

Windows Online. (510)736-8343. Windows BBS and publisher of WinOnLine Review. Over 8,500 Win 3.x & 17,000 DOS files, 7GB, 14 lines using USR-DS modems. Free trial. [Exp. #110.]

Winshare BBS. (510)686-4464. Multi-node, your connection point for Windows/DOS shareware/support. Running Wildcat! Free trial account. [Exp. #109.]

Wishing Well BBS. (510)745-7901. Email, matchmaker, files, 100+ online games, adult sig/files, ANSI art, and more Sysop: MaryLou White. [Exp. #109.]

Wizard's Wasteland. (510)676-3593. 24 hrs., 14,400. No fees. [Exp. #111.]

Worldview BBS. (510)676-2919. 8-N-1, 24 hrs. 1200–14,400. Reformed Christian perspective, files/discussion on philosophy, public policy. $49/yr. Sysop: Bill Gram-Reefer. [Exp. #109.]

Wrencher's Workbench. (510)357-0927. 24 hrs., 300/1200/2400/9600/14,400. Echos, msgs, files, doors, games, auto help, and advice. [Exp. #110.]

707

The Cutting Edge BBS. (707)747-5605. 24 hrs., 14,400. Great adult section, 90+ doors, net mail, files. Free. [Exp. #110.]

Dobbs Enterprises. (707)427-0277. 300/1200/2400/9600. 6 CD-ROMs, UN'I Net, 60,000+ files online, multi-line. [Exp. #109.]

Mnemonic BBS. (707)451-8353. 300/1200/2400/9600/14,400. 2 CD-ROMs, 10,000+ files, netmail, doors. [Exp. #109.]

Recommended BBS. (707)448-2225. 24 hrs. 300/1200/2400. Multiuse games, teleconference conversational, and technical areas, 16 lines. All welcome. Sysop: Jay C Parangalan. [Exp. #109.]

The WINd Tunnel (707)421-0380. 24 hrs. 1200/2400/9600/14,400 Windows programs an utilities, games, WAVs, an TrueType fonts. BRRAne echo mail. Sysop: Joh Wright. [Exp. #110.]

916

24th Street Exchange (916)451-7179. 8-N-1, 2 hrs., 300/1200/2400/960 14,400. 16 lines, six CD ROMs, FidoNet, USA To day. [Exp. #111.]

Starship Enterprise BB (916)338-4674. 8-N-1 300/1200/2400/960 330MB, CD-ROM, IBM Amiga, HP95LX Palmto Ham, Sacramento Clario User Group. Sysop: Aaro Bond. [Exp. #109.]

TELL 'EM YOU SAW IT IN
MICROTIMES

San Francisco Office:
5856 Geary Blvd.
San Francisco, CA 94121
Tel: (415) 751-6046
or (415) 751-6048
Fax: (415) 751-4586

Atman
COMPUTER, INC.

價錢平
歡迎參觀選購
提供國語，粵語、越南語服務
如有詢問，請電:七五一六〇四六

• WE DO REPAIR & UPGRADE SERVICE ON IBM & COMPATIBLES •
No Appointment Necessary, Fast Turn-around, Courteous Service, Experienced Technicians

The Complete Multimedia Sound System $1249
Bundled with 6 CD Deluxe Titles

486DX 33MHz System
Mini Tower Case w/220 Watts Power Supply
Forex 486DX 33MHz System Board
Cyrix 486DLC 33MHz CPU
128KB External Cache Memory Build In
4MB Sim Main Memory Installed (70ns Speed)
IDE Dual Floppy/Hard Disk Controller
1.2MB Floppy Drive (5.25" Size)
1.44MB Floppy Drive (3.50" Size)
120MB Hard Disk (15ms)
1MB Super VGA Graphic Color Card
14" Super VGA Color Monitor
(1024 * 768 Resolution, 0.28 Dot Pitch)
101 Keys Enhanced Keyboard
MicroSoft Serial Compatible Mouse

The Complete Multimedia System Includes:
Media Concept Stereo Sound Card
Photo CD Rom Drive (350ms,,150KB/Sec)
Speakers
Sony Laser Library 6 Disc Set:
Compton's Family Encyclopedia
MicroSoft Bookshelf (Dictionary Referenced)
National Geographic Mammals
Mixed up Mother Goose (Family Game)
World Atlas, Demo, Sound Samples
Language of the World

Monthly Special

Pro Audio Spectrum 16 Sound Card	$149
LogiTech SoundMan 16 Stereo Sound Card	$149
Texel CD Rom Drive DM-3024 (265ms, 300KB/Sec. Double Speed)	$349
Floppy Drive:	
1.2MB Floppy Drive:	$45
1.44MB Floppy Drive:	$38
SamSung Hard Drive:	
120MB Hard Disk (15ms Access time)	$165
250MB Hard Disk (14ms Access time)	$255
ComtaQ Vesa Local Bus Main Board with 4MB Sim Memory:	
486DX 33MHz w/256KB Cache	$500
486DX2 50MHz w/256KB Cache	$600
486DX 50MHz w/256KB Cache	$635
486DX2 66MHz w/256KB Cache	$715
Media Vision 16 Bit Multimedia Complete Kit	**$379**

Included :
Pro Audio Spectrum 16 Bit Stereo Sound Card
Photo CD Rom Drive (350ms, 150KB/Sec)
A pair of Stereo speakers
Sony Laser Library 6 Disc Set:
Toolworks Encyclopedia
MicroSoft BookShelf
World of the Language
World Atlas & U.S. Atlas
National Geographic Mammals
Mother Goose (Family Game)

300 more CD Title selection :
Please Come in our Show Room and See .

Multimedia MPC Product :
Everyday Low Price , 100% Satisfaction,
Rental CD available at $ 5 for a week.

Shareware / Clip Art / Education / Games / Music / Story / Encyclopedia / Adult / Sightseeing etc........

Sound Card:

Media Concept Stereo Sound Card Sound Blaster 2.0 compatible with Midi Sequencer Kit, Speaker & **Microphone**	$85
Sound Blaster Pro w/ 2 Games	$115
Sound Blaster 16 ASP	$215
Pro Audio Spectrum	Special $149

CD Rom Drive:

Misumi CD Rom (350ms, 150KB/Sec.)	$185
Panasonic CD Rom (380ms, 150KB/Sec.)	$229
Panasonic CD Rom (290ms, 200KB/Sec.)	$349
NEC 84-1 CD Rom (250ms, 300KB/Sec.)	$425
Toshiba CD Rom (200ms, 330KB/Sec.)	$450
Texel CD 3024 Rom (265ms, 300KB/Sec.)	Special $349

Media Vision 16 w/Texel CD Complete Kit: ....Special at $549
Pro Audio Spectrum 16 Bit Stereo Sound Card
Texel CD Rom Model DM-3024
(265ms, 300KB/Sec. Double Speed)
LaB Tec Stereo Speaker
Sony Laser Library 6 Disc Set:
Compton's Family Encyclopedia
MicroSoft BookShelf
(Dictionary Referenced)
National Geographic Mammals
Mixed Up Mother Goose (Family Game)
World Atlas, Demo, Sound Samples
Language of the World

• 5 Year Labor (in Store Service) & 1 Year Parts Warranty on All Systems •

386SX 33MHz w/120MB Hard Disk & VGA Color System: $700
Mini Tower Case w/230W. Power Supply
386SX 33MHz Main Board
2MB Sim Memory Installed
IDE Floppy/ Hard Disk Controller
2 Serial, 1 Parallel Printer Port
1.2MB or 1.44MB Floppy Drive
120MB Hard Disk (15ms)
VGA Color Graphic Interface w/256K Ram
14" VGA color Monitor
101 Keys Enhanced Keyboard

386DX 40MHz $888
w/128K Cache
+ 120MB Hard Disk
+ 14" Super VGA Color Monitor

Mini Tower Case w/220W. Power Supply
386DX 40MHz Main Board
128K External Cache Memory Build in
4MB Memory
IDE Floppy/Hard Disk Controller
2 Serial, 1 Parallel Printer Port
1.2MB Floppy Drive (5.25" Size)
1.44MB Floppy Drive (3.50" Size)
120MB Hard Disk (15ms)
1MB Super VGA Graphic Card
14" Super VGA Color Monitor
(1024 * 768 Resolution, 0.28 Dot)
101 Keys Enhanced Keyboard

486DX 33MHz $935
w/128K Cache
+ 120MB Hard Disk
+ 14" Super VGA Color Monitor

Mini Tower Case w/220W. Power Supply
UMC 486DX 33MHz Main Board (Upgradable)
Cyrix 486DLC 33MHz CPU
128K External Cache Memory Build in
4MB Memory
IDE Floppy/Hard Disk Controller
2 Serial, 1 Parallel Printer Port
1.2MB Floppy Drive (5.25" Size)
1.44MB Floppy Drive (3.50" Size)
120MB Hard Disk (15ms Access time)
1MB Super VGA Graphic Card
14" Super VGA Color Monitor
(1024 * 768 Resolution, 0.28 Dot)
101 Keys Enhanced Keyboard

32 Bit VESA VL-Bus Local Bus Intel 486SX 25MHz $999
w/128K Cache & 120 MB Hard Disk

Mini Tower Case w/220W. Power Supply
VESA Local Bus 486SX 25MHz Main Board
Intel 486SX 25MHz CPU
128K External Cache Memory Build in
4MB Memory
IDE Floppy/Hard Disk Controller
2 Serial, 1 Parallel Printer Port
1.2MB Floppy Drive (5.25" Size)
1.44MB Floppy Drive (3.50" Size)
120MB Hard Disk (15ms Access time)
1MB Super VGA Graphic Card
14' Super VGA Color Monitor
(1024 * 768 Resolution, 0.28 Dot)
101 Keys Enhanced Keyboard

32 Bit VESA VL-Bus Local Bus Intel 486DX 33MHz $1199
w/128K Cache & 170MB Hard Disk

Mini Tower Case w/220W. Power Supply
VESA Local Bus 486DX 33MHz Main Board
Intel 486DX 33MHz CPU
128KB External Cache Memory Build in
4MB Memory
IDE Floppy/Hard Disk controller
2 Serial, 1 Parallel Printer Port
1.2MB Floppy Drive (5.25" Size)
1.44MB Floppy Drive (3.50" Size)
Conner 170MB Hard Disk (15ms Access time)
24 Bit True Color Windows Accelerator w/1MB
16 million Color Display True Color.
14" Super VGA Color Monitor (1024*768 Resolution, 0.28 Dot)
101 Keys Enhanced Keyboard

32 Bit VESA VL-Bus Local Bus Intel 486DX 33MHz $1299
w/128K Cache & 213MB Hard Disk (13ms)
+ 14" Super VGA Non Interlaced Color Monitor
(*72 hz Refresh Rate at Super Non Interlaced mode*)
Ficker Free

Mini Tower Case w/220W. Power Supply
VESA Local Bus 486DX 33MHz Main Board
Intel 486DX 33MHz CPU
128KB External Cache Memory Build in
4MB Memory
32 Bits VESA IDE Controller
2 Serial, 1 Parallel Printer Port
1.2MB Floppy Drive (5.25' Size)
1.44MB Floppy Drive (3.50" Size)
Western Digital 213MB Hard Disk (13ms)
32 Bits VESA Windows Accelerator w/1MB
14" U Sync Super Non Interlaced SVGA Color Monitor
(72 Hz Refresh Rate at 1024 * 768 Resolution, 0.28 Dot)
101 Keys Enhanced Keyboard

32 Bit VESA VL-Bus Local Bus Intel 486DX 50MHz $1555
w/256K Cache & 213MB Hard Disk (13ms)
+ 15" Flat Screen Super VGA Non Interlaced Monitor
(*72 hz Refresh Rate at Super Non Interlaced mode*)
Ficker Free

Mini Tower Case w/220W Power Supply
VESA Local Bus 486DX 50MHz Main Board
Intel 486DX 50MHz CPU
256KB External Cache Memory Build in
4MB Memory
32 Bits VESA IDE Controller
2 Serial, 1 Parallel Printer Port
1.2MB Floppy Drive (5.25" Size)
1.44MB Floppy Drive (3.50" Size)
Western Digital 213MB Hard Disk (13ms)
32 Bits VESA Windows Accelerator w/1MB
15" Flat Screen Ficker Free Super VGA Non Interlaced Monitor
(Hitachi Picture Tube, 72 Hz Refresh rate at
1024*768 Resolution Non Interlaced, 0.28 Dot)
101 Keys Enhanced Keyboard

32 Bit VESA VL-Bus Local Bus Intel 486DX2 66MHz $1799
w/256K Cache & 340MB Hard Disk (13ms)
+ 15" Flat Screen Super VGA Non Interlaced Moniter
(*72 hz Refresh Rate at Super Non Interlaced mode*)
* Ficker Free *

Mini Tower Case w/220W Power Supply
VESA Local Bus 486DX2 66MHz Main Board
Intel 486DX2 66MHz CPU
256KB External Cache Memory Build in
4MB Memory
32 Bits VESA IDE Controller
2 Serial, 1 Parallel Printer Port
1.2MB Floppy Drive (5.25" Size)
1.44MB Floppy Drive (3.50" Size)
Western Digital 340MB Hard Disk (13ms)
32 Bits Diamond Stealth VESA Windows Accelerator w/1MB
15" Flat Screen Ficker Free Super VGA Non Interlaced Monitor
(Hitachi Picture Tube, 72 Hz Refresh rate at 1024*768 Resolution
Non-Interlaced, 0.28 Dot)
101 Keys Enhanced Keyboard

• IBM Hardware & Accessories at Super Prices •

Case & Power Supply

Mini Tower w/230W Power Supply	$49 Special!!
Medium Tower w/230W Power Supply	$75
Full Size Tower w/250W Power Supply	$95
Super Tower +2 Fans w/300W Power Supply 10 Drive Base & 2 Side open Door	$185
Baby Desktop w/230W Power Supply	$60
Slim Line Book w/135W Power Supply	$75

Zoltrix Internal Modems

2400 Data/9600 Send Fax Modem	$39
24/96 Send & Receive Fax Modem w/Bit Fax for Windows Software	$55
14400/14400 Send & Receive Fax Modem	$165

Main Board & CPU

AMD 386SX 33MHz	$89 Special!!
AMD 386DX 40MHz w/128K Cache	$150
Cyrix 486DX 33MHz w/128K Cache	$185
Intel Vesa Local Bus 486DX 33MHz w/128K Cache	$399
Intel Vesa Local Bus 486DX 50MHz w/128K Cache	$549
Intel Vesa Local Bus 486DX2 66MHz w/128K Cache	$629

Tape Backup

Archive 250MB (Floppy)	$175
Colorado 250MB (Floppy)	$195
Archive 540MB (SCSI)	$600

Video Cards

VGA Color Graphic Card	$35
Trident 9000 SVGA Card w/ 512K Ram	$39
1MB Super VGA Card	$50 Best
Hi Color Windows Accelerator w/1MB Ram	$59
24 Bit (16 million True Color) SVGA w/1MB	$69
32 Bit Windows Accelerator (Local Bus) w/1MB	$90
32 Bit Genoa Windows Accelerator (Local Bus) w/1MB	$109
32 Bit Diamond SpeedStar Pro (Local Bus) w/1MB	$129
32 Bit Diamond Stealth (Local Bus) w/1MB	$150
32 Bit Orchid Fahrenheit 1280 VA w/1MB	$179
32 Bit Diamond Viper w/2MB Video Ram	$365
32 Bit ATI March 32 (Local Bus) /2M Video Ram	$400

Keyboard

Lion 101 Keys Enhanced Keyboard	$19
Lion 101 (Click) Enhanced Keyboard	$25
Maxi 101 Keys Enhanced Keyboard	$35
Keytronic USA 101 Enhanced Keyboard (Tactile)	$35

Monitor

14" Flat Screen Amber Monitor (Mono)	$99
14" VGA Color Monitor (0.39)	$220
14" Super VGA Color Monitor (0.28 Dot)	$235 Best Price
14" Super VGA *Non Interlaced* Color Monitor	$265
15" Flat Screen SVGA * Non Interlaced* Monitor (Hitachi Picture Tube, 72 Hz Refresh Rate)	$350 Best Price
17" Nanao F550i Flat Screen Monitor	$1025

Memory

1MB Sim Memory	$35
4MB Sim Memory	$150

Floppy / Hard Disk Controller

16 Bit IDE Controller w/2S, 1P, 1G Ports	$15
32 Bit IDE Local Bus w/2S, 1P, 1 Game Ports	$45
32 Bit IDE Caching Controller (Promise)	$175
32 Bit Ultra Stor SCSI Controller	$350

Hard Disk Drive

40MB Hard Disk	$145
80MB Hard Disk	$180
SamSung 120MB Hard Disk	$170
Maxtor 130MB Hard Disk	$199
Conner 170MB Hard Disk	$210
Western Digital 213MB (13ms)	$255
Western Digital 255MB (12ms)	$295
Western Digital 340MB (12ms)	$380
Maxtor or Fujitsu	$Call

Atman Systems Corp.

1 year warranty on parts and labor. Walk-in service within1 hour.
Cash prices reflected. Prices subject to change without notice.
Not responsible for typographical errors.

HOURS:
M-F 10am-6pm
Saturday 11am-5pm

VISA MasterCard AMERICAN EXPRESS

ADVERTISERS INDEX

For your convenience, here is a list of advertisers by county and city. Please see the advertiser index on page 312 for the page number of the advertisement.

Marin/Solano County

Cotati
Halted Specialities

Mill Valley
Marketpro Shows

Novato
BCSA

Petaluma
Pacific Coast Show Productions

San Rafael
Domino Computer Self
Service Centers
Hi-Q Systems
Whole Earth Access

Vallejo
Domino Computer Self
Service Center

Contra Costa County

Albany
PC Ten

Concord
AIM Computers
Backyard Computer
Domino Computer Self
Service Centers
Nordic Computers
R–Computer
Whole Earth Access

Lafayette
EFI's Discount Computer

Pleasant Hill
Computown

Pleasanton
Comtek Computer
Domino Computer
Libre Service Computer, Inc.

San Leandro
PC Ten

San Ramon
Domino Computer Self
Service Centers
Nordic Computers

Walnut Creek
Advance Computer
Alpha Fine Furniture
Computer Selection
Compu Mart
Horizon Training
Systems Unlimited

Alameda County

Berkeley
Domino Computer Self
Service Centers
McTek Systems
MicroLink Data Systems
MicroWorld
Photo Drive-Up
Uncle Ralph's
Whole Earth Access
Winners Circle Systems

Dublin
Comtek Computer

El Cerrito
HD Computers
Positive Solutions
Wentek Computers

El Sorbrante
PC Ten

Emeryville
Microtech

Fremont
Bold Data
Deys Engineering
Domino Computer
Digital Media Labs
Elisa Technology
ENCY Systems
ETI
FRY's Electronics
Golden Micro
Herb's Software Clearance Center
Jump Micro
King Star Computer
Libre Service Computer, Inc.
Mac Outlet
Micro Distribution Center
Microtech int.
New Media
New River
Photo Drive-Up
Songtech International
Spire
Strata Remarketing
Sysper Technologies
U Miracle Computer
USM Systems
VIS Services
World Net Microsystems

Hayward
California Computer
Cal. Tech Instruments
Computerland of Hayward
Domino Computer Self
Service Centers
Generic Computers
Multi Connection
Technology (MCT)
Photo Drive-Up
Printer Works
ScienTech R&D Inc.
T-Tek

Modesto
Aroma Computer

Newark
Gigabytes

Oakland
Domino Computer
Mercury Computer
MIS Services
PC Professionals

Richmond
Evergreen Computer
Lintek

Santa Clara County

Campbell
Domino Computer Self
Service Centers

Cupertino
Cupertino Computer
Photo Drive-Up

Los Gatos
Photo Drive-Up

Milpitas
Bay Computer
Beta Nineties Computer, Inc.
Bozeman Marketing Group
C.B. Memory & Computers
Computer Art Tech
Computown
Domino Computer Self
Service Centers
Hi-Tech USA
Laitron Computer
Legend Computer
Microlink
Photo Drive-Up
Wedge Technology

San Jose
AMT International
Computerwerx
Computask
Domino Computer Self
Service Centers
EMI International
Golden Gate Computer
International Microdevices
ISC Computers
JDR Microdevices
Micro Data Technology
Microland
Miracle Computers
NCA Peripherals
Photo Drive-Up
Pixel USA
Prestige Computer
RT Computer
Tower Computer
Whole Earth Access
WIT International

Santa Clara
Access Computer
Technologies
ASA Computers
Central Computer
C & J Computer
Comtek Computer
Domino Computer Self
Service Centers
Edimax
Halted Specialities
Hitron Systems
Jemini Electronics
MicroLink Data Systems
Photo Drive-Up
Proven Technology
PSC Computing
Santron Computer
Storage Systems Engineering
Specom Technologies
Tanstaafl
Technoland
USM Systems
Wentek Computer

Sunnyvale
ACR Systems
Advance Computer
American Multi Systems
Aroma Computer
ASP Computer Products
Computer Selection
Corporate System Center
Disk Drive Depot
Domino Computer Self
Service Centers
FRY's Electronics
Golden Valley Systems
HD Computers
Hi-Q Systems
HKG Computers
HT Electronics
Leopard Microsystems
MP Computer
NCA Peripherals
Network Associates
PC Warehouse
PromoX Systems
Schwab Computer
Triad
The Super Link
USM Systems

Santa Cruz County

Capitola
Libre Service Computer, Inc.

San Mateo County

Burlingame
Computer Swap

Corte Madera
Soapbox Software

Foster City
Laitron computers
Roger Willis

Los Altos
Domino Computer Self
Service Centers
Photo Drive-Up

Millbrae
Domino Computer Self
Service Centers

Palo Alto
ABS
Comtek Computer
FRY's Electronics
New River
Palo Alto Micro
Photo Drive-Up
PC Warehouse
Rivendell
USM Systems

Mt. View
Photo Drive-Up
Computown

Redwood City
Computer Selection

San Bruno
Comtek
PC Warehouse

San Carlos
Belmont Systems, Inc.
Friendly Software
Hi-Tech USA
Lintec

San Mateo
Libre Service Computer, Inc.
Now Electronics
Santron Computer
Whole Earth Access

San Francisco County

Daly City
Domino Computer Self
Service Centers

San Francisco
Advance Computer
Altman Computer Inc.
Comart Business Systems, Inc.
Compudata
Computer Selection
Computown
Domino Computer Self
Service Centers
Evernet Education Services
Hoot Jurdkins
Horizon Training
Konicom
Libre Service Computer, Inc.
Media Tree
Microage of San Francisco
MicroLink Data Systems
MPS Multi Media
Ramcomp
Santron Computer
SF State
USM Systems
Whole Earth Access

South San Francisco
Beta Nineties Computer, Inc.
Comet Microsystems
Computerland of Serremonte
Fastlink Network Products
Network Innovations
Universal Computer Products
USM Systems

Sacramento County/ Stockton

Sacramento
Computer Leap
Domino Computer Self
Service Centers
Halted Specialties
HD Computers
Hi-Q Systems
Libre Service Computer, Inc.
Whole Earth Access

Stockton
Hi-Q Systems

Out of State

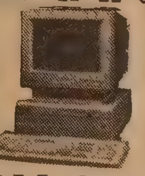
Commodore Computers
Forminco

This index is provided as an ad
tional service. Although we do c
best to maintain accuracy, the Pu
lisher does not assume liability
errors or ommissions.

THE PRICE LEADER

Computer ◆ Color Monitor ◆ Modem ◆ Software ◆ Printer ◆ Cables and Free Training Classes ◆ Financing Available

COMART



486SX-25 MHz

64K Cache Memory
1MB RAM Exp. to 32MB
1.2MB Floppy
IDE HD and Floppy Controller
101 Enhanced Keyboard
2 Serial, 1 Parallel
VGA w/512K exp. to 1MB
SVGA 1024 Res .28 14" monitor
80MB Hard Disk
1 Year Parts & Labor Warranty

$925

486-33 MHz

128K Cache Memory
1MB RAM Exp. to 32MB
1.2MB Floppy
IDE HD and Floppy Controller
101 Enhanced Keyboard
2 Serial, 1 Parallel
VGA w/512K exp. to 1MB
SVGA 1024 Res .28 14" monitor
1 Year Parts & Labor Warranty

$999

386DX-33MHz

1MB RAM, Exp. 32MB, 0 Wait
1-1.2MB Floppy Disk Drive
1:1 Hard & Floppy Disk Controller
Enhanced Keyboard
SVGA Card & 14" SVGA Monitor
AT/IO 2 Serial, 1 Parallel
80MB Hard Disk

$899

486-50 MHz

128K Cache Memory
1MB RAM Exp. to 32MB
1.2MB Floppy
IDE HD and Floppy Controller
101 Enhanced Keyboard
2 Serial, 1 Parallel
VGA w/512K exp. to 1MB
SVGA 1024 Res .28 14" Monitor
1 Year Parts & Labor Warranty

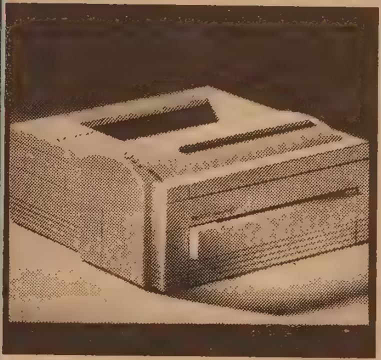
$1149

Accessories

Intel Modem/Fax Board
Multimedia Kit
Network Interface Card
VESA LB and EISA systems
Call For Items Not Listed
CNE is available for service and support

HEWLETT PACKARD
Authorized Dealer

HP LaserJet 4L Printer $699



Resolution
300x300 dots per inch, with further refinement by HP Resolution Enhancement technology and microfine toner. Toner saving capabilities available using EconoMode.

Printer Language
Enhanced HP PCL 5

Font Capability
26 scalable typefaces

HP DeskJet or DeskWriter 500/500C/550C	$359/475/675
HP Portable Printer	$375
HP LaserJet 4/4M	Best Price
HP LaserJet IIIP	$869
HP Scanner IIP/IIC	$729/1299
HP LaserJet Fax/Fax-200/Fax-310	Best Price
HP Vectra 486SX/25 Network Ready system (Monitor is not included)	$995

AST® Authorized Dealer

Notebooks

Power Exec 4.25SI MOD 203 WID 3.1, 80MB	$CALL

Desktop Computers

AST 486DX-33 Exec. System • 4MB RAM, 120MB HD, Modem/Fax, 1.44MB Drive, 14" SVGA Monitor, and mouse. DOS & Windows. After Dark screen saver plus $225 for a software training course. **3-Year Warranty**	$1995
Bravo 4/50d Bundle System • 8MB RAM, 210MB HD, DOS 5.0, Windows 3.1, Mouse	$2499
Power Premium 486-33 System • 4MB RAM, 80MB HD, EISA	CALL
Premium SE 4/66DX File Server • 16MB, 500MB HD, Fast SCSI (3 Year on site warranty available, call for details)	CALL

Call For Items Not Listed

Apple Authorized

Super Special

StyleWriter II	$329
14", .26dpi, SVGA color display	$459
101 Extended Keyboard	$155

Call For Items Not Listed

COMPAQ

Prolinea 3/25s, 386-25, 84MB/120MB HD	$910/970
Prolinea 4/25s, 486-25, 120MB HD	$1119
Prolinea 4/33, 486-33, 120MB HD	$1499
Prolinea 4/50, 486-50, 120MB HD	$1749
Pagemarq 15 ppm, 3 Trays	$CALL
Deskpro 3/25i, 3/33i, 4/33i, 4/66i Deskpro/M 386/33M, 486/33M	Call for Best Prices
Contura 3/25 386-25 84MB HD	$1549
Contura 3/25C 386-25 Color 84MB HD	$2099
LTE Lite/25, 386-25 4MB RAM, 84/120MB HD	Call

Every Prolinea packaged with DOS, Windows & Mouse

EPSON

LQ 570	$276	FX-1050	$399
LQ 1070	$375	ActionLaser II	$695
LQ 1170	$635	Action Printer # 3250/2250	CALL
FX-850	$325		

OKIDATA

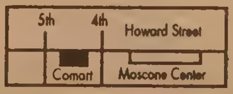
Oki ML 320	$319
Oki ML 590 Plus	$439
Oki LED 400	$559
Oki LED 830 Postscript	$1270
Oki LED 840 Postscript	$1589

Call For Items Not Listed

Novell Authorized Reseller
HEWLETT PACKARD COMPAQ® EPSON® AST® •HYUNDAI IBM
AUTHORIZED DEALER

COMART
COMART BUSINESS SYSTEMS, INC.

843 Howard Street
(Between 4th & 5th)
San Francisco, CA 94103
(415) 896-1765 Fax (415) 896-2582



Store Hours:
Mon Thru Fri 9:00-5:30
Sat 11:00-4:00

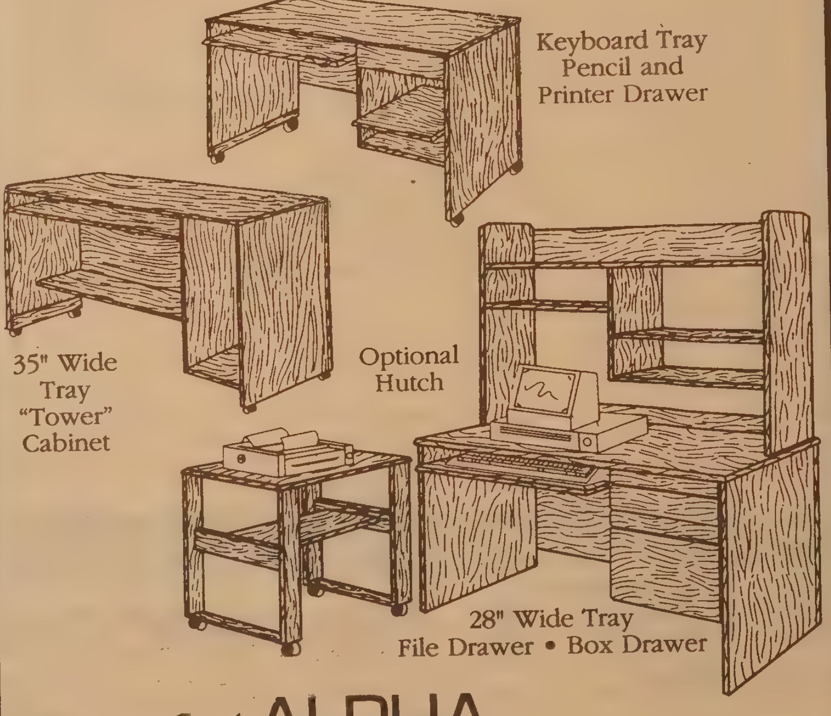
VISA
*Upon credit approval

ADVERTISERS INDEX

A & M TECHNOLOGIES 32
ACCESS COMPUTER TECHNOLOGIES 130-147
ACR SYSTEMS 37
ADVANCE COMPUTER SYSTEMS 4,5
AIM COMPUTERS 95
ALPHA FINE COMPUTER FURNITURE 308
AMERICAL GROUP 299
AMERICAN MULTI SYSTEMS 7
AMT INTERNATIONAL 100,101
AROMA TECH, INC. 90,91
ASA COMPUTERS 97-99
ASIA SOURCE 56,57
ASP COMPUTER PRODUCTS 12
ATMAN COMPUTERS 305
AUTHORIZED TECHNICAL SERVICES 274
AUTOMATED BUSINESS SYSTEMS 152,289
BACKYARD COMPUTER SERVICES 292
BAY COMPUTER 245
BCSA COMPUTERS 281
BELMONT SYSTEMS, INC. 102,103
BETA NINETIES COMPUTER 21
BOLD DATA TECHNOLOGY 64
BOZEMAN MARKETING GROUP, INC. 246
C.B. MEMORY & COMPUTERS 60
C.G.I. TECHNOLOGY 260
CAL TECH INSTRUMENTS 126
CALIFORNIA COMPUTER COMPANY 215
CALIFORNIA MEMORY & COMPONENTS 107
CENTRAL COMPUTER SYSTEMS 224-227
CERTIFIED NETWORK EDUCATORS 82
COMART BUSINESS SYSTEMS 307
COMET MICRO SYSTEMS 81
COMMAX TECHNOLOGIES 19
COMPU EXPO '93 184
COMPUMART 33
COMPUTASK 45
COMPUTER ART 94
COMPUTER QUICK 216
COMPUTER SELECTION 53
COMPUTER SWAP 18
COMPUTER WERX 120,121
COMPUTERLAND OF HAYWARD 63
COMPUTERLAND OF SERRAMONTE 13
COMPUTOWN 40,41
COMTEK COMPUTERS 285
CORPORATE SYSTEMS CENTER 23
CUPERTINO COMPUTER 12
DEYS ENGINEERING 112
DIGITAL MEDIA LABS 297
DISK DRIVE DEPOT 3
DOMINO COMPUTERS 50
DOMINO SELF SERVICE CTR 11
EDIMAX COMPUTER COMPANY 261
EFI'S DISCOUNT COMPUTER 126
EMI INTERNATIONAL, INC. 42
ENCY SYSTEMS 247
EVERGREEN COMPUTER INT'L 24,25
EVERNET SYSTEMS, INC. 38
FASTLINK NETWORK PRODUCTS 125
FORMINCO 115
FRIENDLY SOFTWARE 267
FRY'S ELECTRONICS 2,155-180,311
GIGABYTES 258,260
GOLDEN MICRO COMPUTER 283
GOLDEN VALLEY SYSTEMS 221
H D SYSTEMS 240-243
HALTED SPECIALTIES 96
HALTEK ELECTRONICS 296
HI-TECH USA 256,257
HIQUALITY SYSTEMS, INC. 208-211
HITRON SYSTEMS 68,69
HKG COMPUTERS 237
HT ELECTRONICS 276
INPUT AUTOMATION 80
INTEGRATED NETWORK SERVICES 29
INTERNATIONAL MICRO DEVICES 10
ISC COMPUTERS 35
ITS CD 268
JASMINE MULTIMEDIA 265
JDR MICRODEVICES 39
JEMINI ELECTRONICS 278,279
JUMP MICROSYSTEMS 67
KINGSTAR COMPUTER 9
KONICOM 277
LAITRON COMPUTER 259
LEGEND COMPUTER 229
LIBRE SERVICES COMPUTER, INC. 31
LINTEK COMPUTERS 10
LTI LEOPARD TECHNOLOGIES 111
M.A.C. 119
MACTIVITY CONFERENCE '93 122
MARKET PRO 220
MCTEK SYSTEMS 301
MEDIA TREE 270
MICRO DATA TECHNOLOGY, INC. 249
MICRO DISTRIBUTION CENTER 92
MICRO LAND 127
MICRO LINK 82
MICROLINK DATA SYSTEMS, INC. 14,15
MONARCH COMPUTERS 295
MICROTECH INTERNATIONAL 48,49
MICROWORLD 286
MIRACLE COMPUTER 79
MIS SERVICES 46
MP COMPUTER 223
MPS MULTIMEDIA 273
MCT, MULTI CONNECTION TECHNOLOGY 232
MULTI MICRO SYSTEMS 113
NCA PERIPHERALS 187-205
NETWORK ASSOCIATES CORP 291
NETWORK INNOVATIONS 59
NEW MEDIA 61
NEW RIVER 83
NORDIC COMPUTERS 309
NOW ELECTRONICS 238,239
OP/EN EXPO 290
PALO ALTO MICRO 260
PARADINE COMPUTER SYSTEMS 293
PARS INTERNATIONAL COMPUTER . 129
PC PROFESSIONALS 292
PC TEN 75
PC WAREHOUSE 149
PHOTO DRIVE UP 269
PIXEL USA COMPUTER 116,117
POSITIVE SOLUTIONS CORP. 271
PRESTIGE COMPUTER 72,73
PRINTER WORKS 16
PROMOX SYSTEMS 153
PROVEN TECHNOLOGY 27
QUALITY COMPUTER 216
QUARTERDECK OFFICE SYSTEMS 312
R-COMPUTER 262
RAMCOMP 65
RIVENDELL TECHNOLOGIES 66
RT COMPUTER 212
SCHWAB COMPUTER CENTER 104
SCIENTECH R&D, INC. 231
SF MICRO 54
SFSU EXTENDED EDUCATION 220
SONGTECH INTERNATIONAL, INC. 150
SPECOM TECHNOLOGIES 8
SPIDER GRAPHICS 105
STORAGE SYSTEMS ENGINEERING . 294
STRATA REMARKETING 112
SUNAR SYSTEMS 152
SYSPER TECHNOLOGY 26
SYSTEMS UNLIMITED 36
T-TEK 268
TANSTAAFL MANUFACTURING, INC. .. 47
TECHNOLAND 183
THE SUPER LINK 7
TRIAD COMPUTER 3
UMIRACLE MICROSYSTEMS 206,20
UNCLE RALPHS 5
UNITED SOLUTIONS 28
UNIVERSAL COMPUTER PRODUCTS . 9
USM DISTRIBUTORS 108,10
VIS SERVICES 6
WENTEK COMPUTER 23
WHOLE EARTH ACCESS 84-8
WINNER'S CIRCLE 15
WIT INTERNATIONAL 12
WORLD-NET MICROSYSTEMS 21
YOKOHAMA TELECOM CORPORATION 14

This index is provided as an additio service. Although we do our best maintain accuracy, the Publisher do not assume liability for errors ommissions.

Great Selection Of Sizes And Designs



ALPHA
FINE COMPUTER FURNITURE
2241 N. Main, Walnut Creek • OPEN M-F 9:30-5:30, SAT 10-5
(800) 974-0277 (510) 930-0277

Lifetime In-Store
Labor Warranty
1 Year Warranty
On Parts

THOUSANDS OF SATISFIED CUSTOMERS SAY,

"GO SEE NORDIC"

OVER 17,500 SYSTEMS SOLD!

NORDIC COMPUTERS

GREAT VALUE

486-50 VESA LOCAL BUS SYSTEM

w/Hard Drive & Super VGA Monitor

486-50DX, 2VLB Slots
4 MB RAM, 70ns
ISA Hard Drive & Controller
Viewsonic 4E SVGA Monitor (.28dp)
Teac 1.2 & 1.44 Floppy Drives
2 Serial, 1 Parallel Port
Maxiswitch or Keytronic Keyboard
Medium Tower Case
DOS 6.0 w/Manual
Lifetime Labor Warranty, 1 yr. parts

SVGA 120MB	SVGA 245MB	SVGA 345MB
$1745	$1845	$1960

GREAT PRICE

486DX2-66 VESA LOCAL BUS SYSTEM

w/Hard Drive & Super VGA Monitor

486DX2-66, 2 VLB Slots
4 MB RAM, 70ns
IDE Hard Drive & Controller
Viewsonic 4E SVGA Monitor (.28dp)
Teac 1.2 & 1.44 Floppy Drives
2 Serial, 1 Parallel Port
Maxiswitch or Keytronic Keyboard
Medium Tower Case
DOS 6.0 w/Manual
Lifetime Labor Warranty, 1 yr. parts

SVGA 120MB	SVGA 245MB	SVGA 345MB
$1815	$1915	$2035

Nordic Computers

builds all of its computers from premium quality components. Such as:

TEAC Floppy Drives
Viewsonic Monitors
Maxtor Hard Drives
Conner Hard Drives
Maxiswitch Keyboards
Keytronic Keyboards
Logitech Mouse Products
AMI BIOS, Intel CPU's
UL Approved Power Supplies
FCC Class B Rated

CUSTOM CONFIGURATIONS AVAILABLE — CALL FOR QUOTES

486-33 System

VESA LOCAL BUS

33MHz, 2 VLB Slots
128K Cache Memory
4 MB RAM, 70ns
IDE Hard Drive
Viewsonic 4E SVGA Monitor
1.2 & 1.44 MB Floppy Drives
Enhanced Keyboard
2 Serial/1 Parallel Port
DOS 6.0 with manual
Lifetime Labor Warranty
1 yr. parts

SVGA 120MB	SVGA 245MB	SVGA 345MB
$1525	$1625	$1740

386-40 System

w/Hard Drive & Monitor

40MHz
128K Cache Memory
4 MB RAM, 70ns
IDE Hard Drive
Super VGA Monitor .28 dp
1.2 & 1.44 MB Drives
Enhanced Keyboard
2 Serial/1 Parallel Port
DOS 6.0 with manual
Lifetime Labor Warranty
1 yr. parts

SVGA 80MB	SVGA 120MB	SVGA 170MB
$1199	$1239	$1279

386SX-33 System

w/Hard Drive & Monitor

33MHz
1 MB RAM
IDE Hard Drive
1.2 MB Floppy Drive
Enhanced Keyboard
2 Serial/1 Parallel Port
DOS 6.0 with manual
Lifetime Labor Warranty
1 yr. parts

MGVA 40MB	VGA(.41) 40MB	VGA(.41) 80MB
$699	$799	$849

System Add-Ons

2400 Modem	$30
14.4/14.4 Fax/Modem	$195
Logitech MouseMan	$69
Additional Memory, per MB	$35–50
Noise Killer	$49
1.2 Floppy/1.44 Floppy	$60/50
CPU Cooling Kit	$25

FAN NOISE

NOISE KILLER™
Keep Your Office Quiet

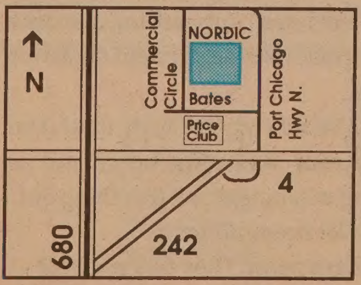
Only $49 With Any New **NORDIC** System

NORDIC COMPUTERS
Concord

**5060 Commercial Circle, Unit A
Concord, CA 94520**

(510) 687-3050

M-F 10:00-6:00 • Open Sat. 10:00-4:00

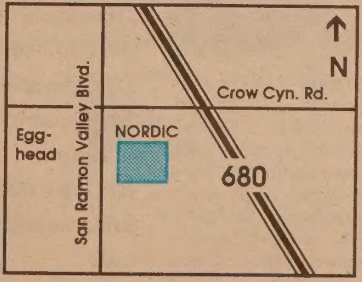


NORDIC COMPUTERS
San Ramon

**2438 San Ramon Valley Blvd.
San Ramon, CA 94583**

(510) 743-9390

M-F 10:00-6:00 • Open Sat. 10:00-4:00



VISA **Prices subject to change without notice. Dealer inquiries welcome.** MasterCard

After Fuzzy Logic, What Next?

A Fuzzy Interview With The Fuzzy Logic Experts

BY JOHN C. DVORAK

DVORAK'S LAST COLUMN

Paul Freiberger is a local writer best known for his work at *Infoworld*, the defunct *Popular Computing*, and then the *SF Examiner*. His most famous book, until now, was *Fire in the Valley*, a history of the personal computer that has been used as a source for more than a few other books. He quit the *Examiner* recently to work for Paul Allen's foundation or something. I haven't a clue what he does there. Paul Allen is cofounder of Microsoft and worth a few billion.

Freiberger has been pestering me to plug his new book, *Fuzzy Logic* (Simon & Schuster, 1993) by Daniel McNeill and Paul Freiberger. It tells the story of an idea we invented and the Japanese are taking to the bank. Sounds familiar, right? But this case is different from the VCR and the flat panel display, because we didn't even want fuzzy logic.

I already interviewed Paul on my KALW show *Software/Hardtalk*, but Paul feels so fierce about his message that he badgered me into doing this fake interview with him and McNeill about *Fuzzy Logic*. It's like one of those fake generic interviews that radio DJs do on the air when they interview some celebrity whose voice is actually recorded on tape. The questions are written by the interviewees. You read a script as the recording plays. If you miss a line it can sound pretty ridiculous.

Even though Paul has never done me any favors, I still like the guy and agreed to do it—for America! To make it interesting I've categorized the phony questions I'm asking Paul and Dan so you can see how these things are structured.

Here it is, the interview with authors Daniel McNeill (DM) and Paul Freiberger (PF) about the book *Fuzzy Logic*.

Copyright© 1993 by John C. Dvorak. All rights reserved. John C. Dvorak graduated from the University of California. He is a contributing editor of PC Magazine *and* MacUser, *and is considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

First Question: Big, fat, slow pitch, designed to be hit out of the park. The typical dopey first question.

JD: Why do some Americans still resist all these smart fuzzy products? Are we just stupid?

DM *[laughs]*: A big problem is the name. A name makes an argument. For instance, artificial intelligence argues "brains in a box," "twenty-third century," "wonders beyond belief." It's hard to attack these things. "Fuzzy logic" says "fog machine." It invites attack.

The classic follow-up asking for clarification.

JD: You aren't saying that scientists are fighting it because of the name?

PF: Yes. That's part of it. If we'd called it "anti-fuzzy logic" a much more accurate name, by the way, we'd have these smart appliances here today. How could anyone oppose "anti-fuzzy logic"?

DM: There's a flip side to this too. Because of the name, fuzzy logic has come under the harshest scrutiny. So it's like the old saw: "With a name like fuzzy logic, it's got to be good."

The open-ended question. Look at how, although Freiberger wrote the question, he leads off with an answer to something completely different.

JD: What makes fuzzy logic so useful?

PF: Fuzzy logic isn't logic that's fuzzy. It's logic that describes and tames fuzziness. It lets us work with vagueness. Vagueness has always been a great enemy of clear thought. But what have we done about it? We've just sat around and hated it. Fuzzy logic takes a know-thy-enemy approach. For the first time, it lets us understand vagueness, and once we understand it, we can use it. And it turns out to be a very powerful tool.

Here's a beaut. In reality, I'd be snoozing.

JD: How come?

DM: We all think in vague or fuzzy terms. We use words like "hot" or "big" or "slowly," and in fact we make important and usually correct decisions with them. Fuzzy logic uses the same terms. It lets machines think like people.

Check out this next one: Classic self-deprecating yuk-yuk-duh dopey interviewer question. Really lame.

JD: I'm not sure I want my washing machine to think too much like me. It might take over my column.

PF *[laughs]*: What's wrong with that? You could spend your days at the beach and let your washing machine crank this thing out.

Interviewees love compliments.

JD: An excellent point. How do I get one?

DM: You board a jumbo jet, cross the Pacific, and walk into almost any department store in Japan. You can't buy one here.

On to the lame analogy. Of course, it's the interviewer who is the one forced to look lame.

JD: It sounds like trying to buy a pen computer in Angola.

PF: Sort of, yes. But we've been almost willfully blind to fuzzy logic. In our book we point out how the Japanese are using it every day in refrigerators, subways, microwaves, vacuum cleaners, expert systems, and on and on and on. Then an American reviewer reads our book and calls fuzzy logic "potentially useful."

More compliments for the interviewee follow next. This is beginning to sound like a "Hollywood Moment!"

JD: With that kind of shrewd analysis, the Japanese are really in trouble.

DM *[laughs]*: Right. It's like calling the VCR "potentially useful."

Here comes another softball.

JD: What's wrong with these guys?

DM: For one thing, fuzzy logic overturns a 2300-year-old tradition of thinking about logic. Ever since Aristotle, we've viewed statements as black/white, on/off, true/false. Fuzzy logic says statements can be partly true, partly false. Of course, everybody knows statements can be partly true. But some scientists get very upset about this "partly true." You wouldn't believe it. They say it could bring down the house of science.

Here I'm supposed to be incredulous. Sheesh.

JD: Really?

PF: Yes. And there's another obstacle. Traditional AI has become very entrenched in this country. We've spent billions of dollars—some say as much as $100 billion—on it, and what has it brought us? You don't see AI products in the shopping center, or the home, or the office, or the automobile. We've spent almost nothing on fuzzy logic, and it's everywhere. Old AI is bulky and complex, but fuzzy logic is so easy that even some lay people can use it. This is all very threatening to many established careers.

The writers keep asking themselves these stock questions—all softballs until the end when we come to the final question. Now it's time to fall all over myself when I close on an upbeat note.

JD: Well, thanks. It's been fascinating. Your book *Fuzzy Logic* is amazing, and I hope everyone in America buys a copy.

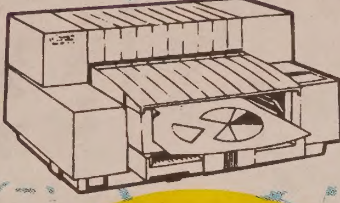
DM/PF: Thank you.

Now the challenge is to find a copy of the book! ■

Savings Headquarters

FRY'S AND HP KNOW HOW TO MAKE WAVES!

HEWLETT PACKARD
Authorized Dealer
A 50 YEAR TRADITION OF QUALITY.
HP DELIVERS PC PRODUCTS YOU CAN DEPEND ON.



DeskJet 500C Color InkJet Printer

COLOR INKJET OUPUT AT 300 DPI!

Prints in Color or
Black and White
100 Sheet Paper Feeder
Whisper Quiet
3 Year Warranty #1632480

$\$494^{95}$

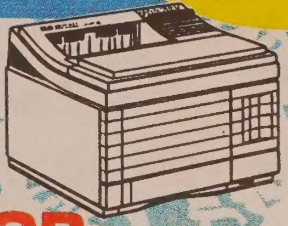
Color PaintJet XL300

HP C2856A Color Graphics Ink Jet Printer

300 DPI Plain Paper
200 CPS NLQ
Prints on Transparency
Film & Paper
360 Colors addressable,
over 16.5 million color
available
#1688986

$\$2199^{99}$

LaserJet 4

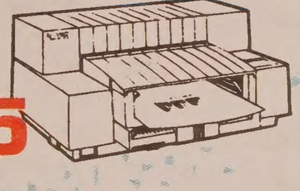


Fast 8ppm printing for complex documents
45 Scalable Fonts • 2MB RAM
600 DPI Print Quality at a 300 DPI Price
300 Page Paper Capacity
Ideal for Windows & Graphics
Optional Full Network Capabilities
#1734140

CALL FOR BEST PRICE

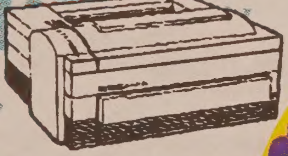
DeskJet 500 Inkjet Printer

300 DPI LASER QUALITY
Scalable Fonts for MicroSoft Windows 3.0
Water Resistant Ink
Character Kerning for Improved Letter Spacing
Whisper Quiet • Three Year Warranty
#1529128



$\$349^{95}$

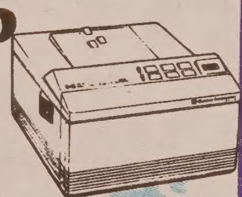
LaserJet 4L



26 built-In scalable typefaces let you shrink and enlarge type to thousands of sizes.
300 DPI Laser printing with HP Resolution Enhancement technology and microfine toner for smooth, sharp text and graphics.
1MB standard memory with Memory Enhancement technology effectively doubles your printer memory.
#1786963

CALL FOR BEST PRICE

LaserJet IIIP



$\$874^{95}$

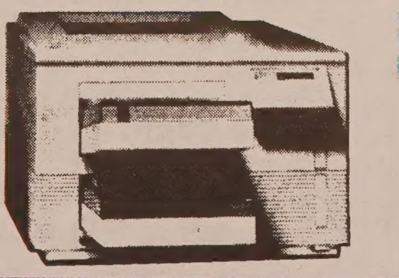
Resolution Enhancements Yield The Highest Quality Laser Output! 8 SCALABLE Fonts
14 Bit-Mapped Internal Fonts •1MB RAM
4 Pages/Minute • Serial/Parallel
Poscript Upgradeable #1584062

LaserJet 4Si

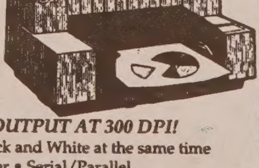
- Expandable and flexible, excellent for networks
- Fastest HP LaserJet printer at 17 ppm
- Multiple language capability with auto switching
- True 600 x 600 dpi printing with REtand microfine toner
- 75,000 page/ month duty cycle and flexible paper-handling
- HP quality and reliability

#1779583

THE PERFECT NETWORK SHARED PRINTER!



DeskJet 550C Color InkJet Printer



COLOR INKJET OUTPUT AT 300 DPI!
Prints in Color or Black and White at the same time
100 Sheet Paper Feeder • Serial/Parallel
13 Scalable Fonts for Windows • 84 DOS Fonts
Whisper Quiet • 3 Year Warranty #1733703

CALL FOR BEST PRICE

Home of Fast, Friendly , Courteous Service

Fry's ELECTRONICS

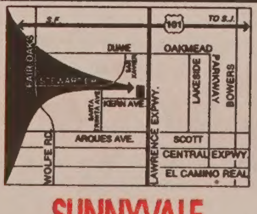
Prices good thru June 21, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

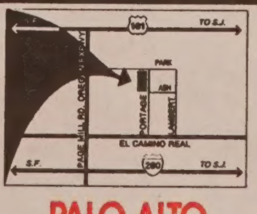
STORE HOURS
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD ACCEPTED

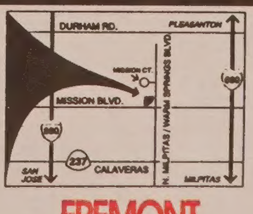
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S.J.
FAIR OAKS
DUANE
OAKMEAD
STEWART
SANTA TRINITA AVE
KERN AVE.
LAKESIDE
PARKWAY
BOWERS
WOLFE RD.
ARQUES AVE.
LAWRENCE EXPWY.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
PAGE MILL RD. OREGON EXPWY
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
280

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT.
MISSION BLVD.
N. MILPITAS / WARM SPRINGS BLVD.
680
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

Great News!
QEMM Solves
DOS 6 Memory Problems

QEMM

Safety in Numbers

Safe Memory Management Keeps Your System Running Smoothly.

What's more annoying than losing work on your PC? A crash or 'hang' destroys everything you've done since the last time you saved. That work is lost forever.

Two major causes of crashes are memory conflicts and running out of memory. To avoid these problems, many users sacrifice productivity-enhancing TSRs or useful network utilities. And that's unfortunate, because the right memory management lets you have it all—safety and performance.

Have Your Cake and Eat it, Too.

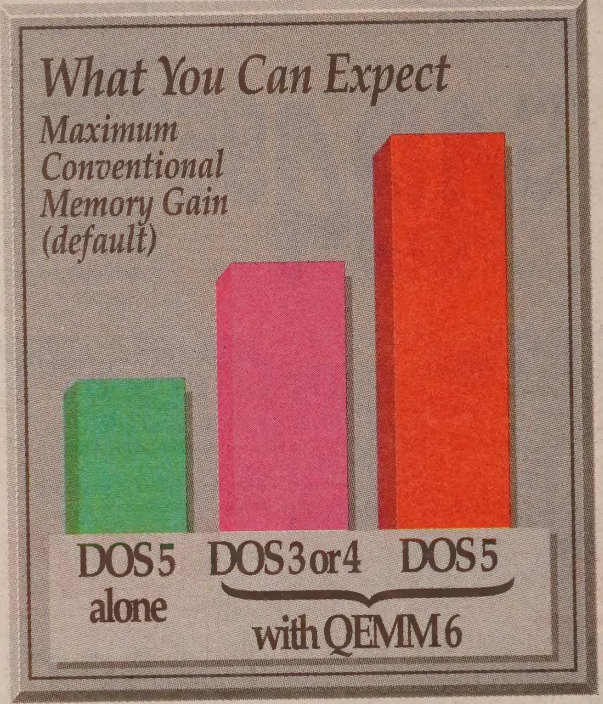
QEMM-386™ version 6 lets you run your favorite programs *and* TSRs without fear of 'out of memory' problems or conflicts. It provides the maximum memory right where your programs need it.

The more memory you have, the more reliability you get. No other memory manager measures up to QEMM's performance.

PC Week Ratings	All Charge 386 3.2	Netroom 2.10	QMAPS 2.0	386Max/ BlueMax 6.00	QEMM 6.01 Analyst's Choice	Memory Commander 2.1
Software Compatibility	◐	●	○	◐	●	◐
Hardware Compatibility	◐	●	◐	◐	●	◐
Reliability	○	◐	○	◐	●	○
Ease of Use	◐	●	◐	●	●	◐
Memory Management Flexibility	◐	●	◐	●	●	◐
Quality of Documentation	◐	◐	◐	●	◐	◐

● GOOD ◐ SATISFACTORY ○ NEEDS IMPROVEMENT

PC Week carefully compared them all and rated QEMM-386 v6 the best memory manager.



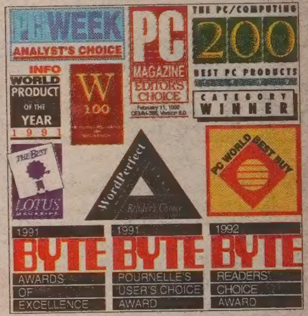
This is what QEMM-386 does for a typical PC. It reorganizes memory to produce greater speed and safety.

Nobody Knows Memory Like We Know Memory.

That's not bragging, just fact. As recently as two years ago, DOS ignored the importance of maximizing conventional memory. At that time, our QEMM-386 v5 provided up to 128K more usable memory. QEMM became a virtual necessity for 'power users.'

Today, our latest QEMM-386 version 6 surpasses even that achievement. Thanks to our new, smart 'stealth' technology, it finds as much as 96K more high memory than other memory managers. And speaking of other memory managers, not one has yet been able to match our performance. Instead, some have slashed prices or started nasty rumors just because they couldn't reliably deliver the same results. These tactics must not work, since we continue to outsell all the others put together.

QEMM. The Memory Manager Millions Rely on Every Day.


PC WEEK ANALYST'S CHOICE
PC MAGAZINE EDITORS' CHOICE
February 11, 1992
QEMM-386, Version 6.0
THE PC/COMPUTING 200 BEST PC PRODUCTS
CATEGORY WINNER
INFO WORLD PRODUCT OF THE YEAR 1991
W 100
THE BEST LOTUS
WordPerfect Readers' Choice
PC WORLD BEST BUY
1991 BYTE AWARDS OF EXCELLENCE
1991 BYTE POURNELLE'S USER'S CHOICE AWARD
1992 BYTE READERS' CHOICE AWARD

QEMM has won more recognition than all other memory managers combined.

Considering its unsurpassed performance and the safety it adds to your system, it's no wonder that millions of PC owners use QEMM. And it should be no surprise that 'gurus' and MIS managers consistently vote QEMM-386 the top memory manager in poll after poll, year after year.

Protect Your Productivity; Keep Your Work Safe.

Any task, from programming to writing the company business plan to composing a personal letter, takes time and thought. Your PC is supposed to make that process easier; your output better. When you can't run your favorite grammar-checking TSR or have to get by without a vital network utility, you're sacrificing productivity.

QEMM comes with Manifest, the award-winning memory analyzer that helps you avoid memory conflicts.

Whether you're running MS-DOS, IBM™ PC-DOS, DR DOS or MS Windows, don't sacrifice; don't compromise; don't risk losing work. QEMM-386 version 6 is the most powerful, flexible memory manager you can buy. Period.

Quarterdeck

©1993 Quarterdeck Office Systems. Trademarks are property of their respective owners.

CompUSA
San Bruno (415) 244-9990
Santa Clara (408) 554-1733

Fry's Electronics
Sunnyvale (408) 733-1770
Palo Alto (415) 496-6000
Fremont (510) 770-3797

800-Software
Berkeley (800) 888-4880

PC by Root
San Mateo (800) 347-0343
San Francisco (415) 923-0343